



Ref. Certif. No.

SG-OF-03357

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST  
CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE)  
CB SCHEME

SYSTEME CEI D'ACCEPTATION MUTUELLE DE  
CERTIFICATS D'ESSAIS DES EQUIPEMENTS  
ELECTRIQUES (IECEE)METHODE OC

## CB TEST CERTIFICATE CERTIFICAT D' ESSAI OC

Product Produit	Adaptors (AC Power Adapter)
Name and address of the applicant Nom et adresse du demandeur	XIAMEN METROTEC INDUSTRY CO.,LTD. NO.46,Meixi Road,Eastern Sea Rim, Siming Industrial Park, Tongan 361100 Xiamen, PEOPLE'S REPUBLIC OF CHINA
Name and address of the manufacturer Nom et adresse du fabricant	XIAMEN METROTEC INDUSTRY CO.,LTD., NO.46,Meixi Road,Eastern Sea Rim, Siming Industrial Park, Tongan, 361100 Xiamen, PEOPLE'S REPUBLIC OF CHINA
Name and address of the factory Nom et adresse de l'usine	XIAMEN METROTEC INDUSTRY CO.,LTD., NO.46,Meixi Road,Eastern Sea Rim, Siming Industrial Park, Tongan, 361100 Xiamen, PEOPLE'S REPUBLIC OF CHINA
Rating and principal characteristics Valeurs nominales et caractéristiques principales	Rated voltage: 100-240 V Rated frequency: 50-60 Hz Rated current: 0,2 A max. Rated output:  7,5 V, 100-300 mA (MN-A001-A08Z, MN-A002-A08Z) 9,0 V, 100-300 mA (MN-A001-A09Z, MN-A002-A09Z, MN-A003-A09Z) Rated operation: continuous Protection class: II Degree of protection: IP20 Meic
Trade mark (if any) Marque de fabrique (si elle existe)	MN-A001-A08Z, MN-A002-A08Z, MN-A001-A09Z, MN-A002-A09Z, MN-A003-A09Z (Z=0-9, a-z or A-Y indicates series number, the output current range is from 100mA to 300mA by step of 10mA.)
Model/type Ref. Ref. de type	IEC 60950-1:2005
Additional information (if necessary) Information complémentaire (si nécessaire)	TÜV SÜD PSB Pte Ltd 085-10501101-000
A sample of the product was tested and found to be in conformity with Un échantillon de ce produit a été essayé et a été considéré conforme à la as shown in the Test Report Ref. No. which form part of this certificate comme indiqué dans le Rapport d'essais numéro de référence qui constitue une partie de ce certificat	

This CB Test Certificate is issued by the National Certification Body  
Ce Certificat d'essai OC est établi par l'Organisme National de Certification

Date, 2010-02-25  
CBS 10 02 72176 009

  
( Liu Shaochang )

TÜV SÜD PSB Pte Ltd · 1 Science Park Drive · Singapore 118221



PSB Singapore



Test Report issued under the responsibility of:

NCB TÜV SÜD PSB Pte Ltd  
1 Science Park Drive  
Singapore 118221



## TEST REPORT

### IEC 60950-1: 2005 (2nd Edition) and/or EN 60950-1:2006 Information technology equipment – Safety – Part 1: General requirements

**Report Reference No.** ..... 085-10501101-000

Date of issue ..... 2010-02-23

Total number of pages ..... 48 pages

**CB Testing Laboratory** ..... Jiangsu TÜV Product Service Ltd.-Guangzhou Branch

Address ..... 26/F, Dongbao Tower, 767 Dongfeng Road East, Guangzhou, 510600,  
P. R. China

**Applicant's name** ..... XIAMEN METROTEC INDUSTRY CO., LTD.

Address ..... NO.46, Meixi Road, Eastern Sea Rim, Siming Industrial Park, Tongan,  
361100 Xiamen, PEOPLE'S REPUBLIC OF CHINA

**Manufacturer's name** ..... Same as applicant

Address ..... Same as applicant

**Factory's name** ..... Same as applicant

Address ..... Same as applicant

#### Test specification:

Standard .....  IEC 60950-1:2005 (2nd Edition) and/or  
 EN 60950-1:2006

Test procedure ..... CB-Scheme

Non-standard test  
method ..... N/A

**Test Report Form No.** ..... IECEN60950\_1C

Test Report Form(s) Originator ..... SGS Fimko Ltd

Master TRF ..... Dated 2007-06

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If this Test Report Form is used by non-CCA members, the CIG logo and the reference to the CCA Procedure shall be removed.

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Test item description .....	AC Power Adapter
Trade Mark.....	Meic
Manufacturer.....	Same as applicant
Model/Type reference .....	MN-A001-A08Z, MN-A002-A08Z, MN-A001-A09Z, MN-A002-A09Z, MN-A003-A09Z (Z=0-9, a-z or A-Y)
Ratings .....	Rated voltage range: 100-240V a.c., 50-60Hz Rated current: 0,2A max. Rated output voltage/current: 7,5V d.c./100-300mA (MN-A001-A08Z, MN-A002-A08Z) 9,0V d.c./100-300mA (MN-A001-A09Z, MN-A002-A09Z, MN-A003-A09Z) (see attachment no.1)

**Testing procedure and testing location:**

<input checked="" type="checkbox"/> <b>CB Testing Laboratory:</b>	Jiangsu TÜV Product Service Ltd.-Guangzhou Branch
Testing location/ address .....	26/F, Dongbao Tower, 767 Dongfeng Road East, Guangzhou, 510600, P. R. China
<input type="checkbox"/> <b>Associated CB Laboratory:</b>	--
Testing location/ address .....	--
Tested by (name + signature) .....	Mr. Eddy Luo
Approved by (+ signature).....	Mr. Richard Zhu
<input type="checkbox"/> Testing procedure: TMP	
Tested by (name + signature) .....	--
Approved by (+ signature).....	--
Testing location/ address .....	--
<input type="checkbox"/> Testing procedure: WMT	
Tested by (name + signature) .....	--
Witnessed by (+ signature).....	--
Approved by (+ signature).....	--
Testing location/ address .....	--
<input type="checkbox"/> Testing procedure: SMT	
Tested by (name + signature) .....	--
Approved by (+ signature).....	--
Supervised by (+ signature) .....	--
Testing location/ address .....	--
<input type="checkbox"/> Testing procedure: RMT	
Tested by (name + signature) .....	--
Approved by (+ signature) .....	--
Supervised by (+ signature) .....	--
Testing location/ address .....	--

**Summary of testing:**

1. Samples tested comply with standard IEC 60950-1:2005.
2. The tolerances  $\pm 10\%$  on rated voltage which is declared by the applicant.
3. The selected models for test are the most representative:

Model type	Performed test
MN-A003-A090 (9V, 0,3A)	Full test
MN-A001-A080 (7,5V, 0,3A)	LPS test

4. Plug portion is tested according to EN 50075:1990.
5. Before placing the products in the different countries, the manufacturer must ensure that:  
Operating Instructions, Ratings Labels and Warnings Labels are in an Accepted or Official Language of the country in question; The equipment complies with the National Standards and/or Electrical Codes of the country, province or city or in question.

**Tests performed (name of test and test clause):**

- Input current test (1.6.2)
- Marking durability test (1.7.11)
- Finger test (2.1.1.1.b)
- Pin test (2.1.1.1.c)
- Energy hazard test (2.1.1.5)
- Stored discharge on capacitor test (2.1.1.7)
- SELV circuits test (2.2)
- Limited current circuits test (2.4)
- Limited power sources test (2.5)
- Humidity conditioning test (2.9.2&5.2.2)
- Determination of working voltage test (2.10.2)
- Clearances and creepage distances measurements (2.10.3, 2.10.4)
- Distance through insulation measurements (2.10.5)
- Mechanical strength – 10 N force test(4.2.2)
- Mechanical strength – 250 N force test (4.2.4)
- Mechanical strength – drop test (4.2.6)
- Stress relief test(4.2.7)
- Torque test (4.3.6)
- Normal operating test (4.5.1)
- Ball pressure test (4.5.5)
- Touch current test (5.1)
- Electric strength test (5.2)
- Abnormal operating and fault conditions test (5.3)

**Testing location:**

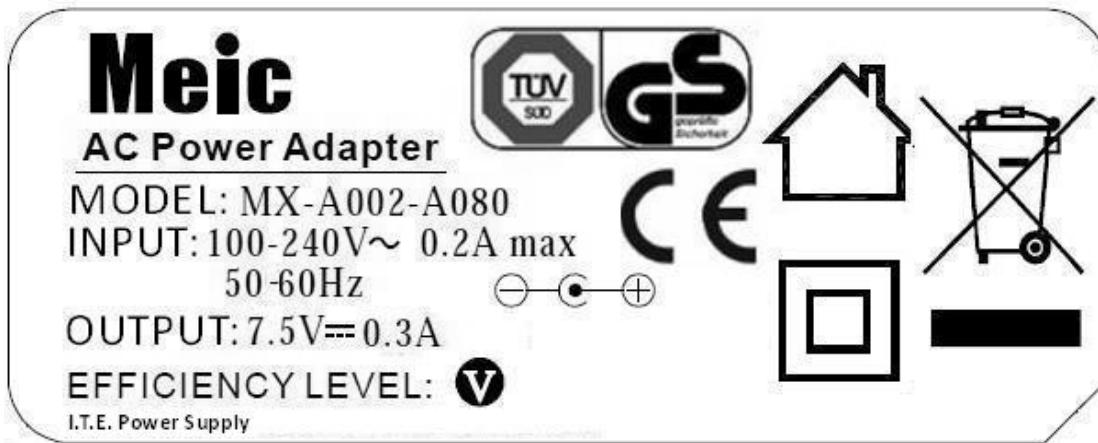
26/F, Dongbao Tower, 767 Dongfeng Rd. East, Guangzhou 510600, P. R. China



**Summary of compliance with National Differences:**

Denmark, Finland, Germany, Ireland, Norway, Spain, Sweden, Switzerland, United Kingdom

**Copy of marking plate (representative):**





<b>Test item particulars</b> .....:	
Equipment mobility .....	: <input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> transportable <input type="checkbox"/> stationary <input type="checkbox"/> for building-in <input checked="" type="checkbox"/> direct plug-in
Connection to the mains .....	: <input checked="" type="checkbox"/> pluggable equipment <input checked="" type="checkbox"/> type A <input type="checkbox"/> type B <input type="checkbox"/> detachable power supply cord <input type="checkbox"/> non-detachable power supply cord <input type="checkbox"/> not directly connected to the mains
Operating condition .....	: <input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Access location .....	: <input checked="" type="checkbox"/> operator accessible <input type="checkbox"/> restricted access location
Over voltage category (OVC) .....	: <input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other:
Mains supply tolerance (%) or absolute mains supply values .....	: +10%, -10% (required by the applicant)
Tested for IT power systems .....	: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
IT testing, phase-phase voltage (V) .....	: 230V (only for Norway)
Class of equipment .....	: <input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Considered current rating (A) .....	: 16A except 13A for United Kingdom
Pollution degree (PD) .....	: <input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class .....	: IP20
Altitude during operation (m) .....	: < 2000 m
Altitude of test laboratory (m) .....	: < 500 m
Mass of equipment (kg) .....	: Approx. 0.065 kg
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object.....	: N/A
- test object does meet the requirement .....	: P (Pass)
- test object does not meet the requirement .....	: F (Fail)
<b>Testing</b> .....:	
Date of receipt of test item.....	: 2009-12-30
Date(s) of performance of tests.....	: 2009-12-30 to 2010-02-21
<b>General remarks:</b>	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
<b>Note: This TRF includes EN Group Differences together with National Differences and Special National</b>	



**Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.**

Throughout this report a point is used as the decimal separator.

This report consists of:

Attachment No.1: 1 page of model list;

Attachment No.2: 2 pages of EU plug test data;

Attachment No.3: 15 pages of electric circuit drawing, PCB layout drawing and transformer specification;

Attachment No.4: 4 pages of photo documentation.

**General product information:**

1. These switching power supplies are designed to supply power for information technology equipment, for indoor use only and ambient temperature 40°C Max.
2. Models MN-A001-A08Z, MN-A002-A08Z, MN-A001-A09Z, MN-A002-A09Z and MN-A003-A09Z, Z=0-9, a-z or A-Y indicates series number, the output current range is from 100mA to 300mA by step of 10mA.
3. MN-A001-A08Z and MN-A002-A08Z are the same in construction except different model name; MN-A001-A09Z, MN-A002-A09Z and MN-A003-A09Z are the same in construction except different model name.
4. Models MN-A001-A08Z/MN-A002-A08Z and MN-A001-A09Z/MN-A002-A09Z/MN-A003-A09Z are similar except different output rating, different parameter of transformer and some components.



## IEC/EN 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
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1	GENERAL		P
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1.5	Components		P
1.5.1	General		P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components		P
1.5.3	Thermal controls		N/A
1.5.4	Transformers	Comply with annex C	P
1.5.5	Interconnecting cables		N/A
1.5.6	Capacitors bridging insulation	Y1 capacitor (C50, optional) across between primary circuit and secondary circuit	P
1.5.7	Resistors bridging insulation		N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems	No such capacitors used	N/A
1.5.9	Surge suppressors		P
1.5.9.1	General	Approved surge suppressors (VR1, optional) used	P
1.5.9.2	Protection of VDRs		P
1.5.9.3	Bridging of functional insulation by a VDR		P
1.5.9.4	Bridging of basic insulation by a VDR		N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR		N/A

1.6	Power interface		P
1.6.1	AC power distribution systems	TN and IT (Only for Norway)	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment		N/A
1.6.4	Neutral conductor		P

1.7	Marking and instructions		P
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## IEC/EN 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
1.7.1	Power rating		P
	Rated voltage(s) or voltage range(s) (V) ....: 100-240V ~		P
	Symbol for nature of supply, for d.c. only.....:		N/A
	Rated frequency or rated frequency range (Hz) ...: 50-60		P
	Rated current (mA or A) .....	0.2A max.	P
	Manufacturer's name or trade-mark or identification mark .....	Trademark "Meic"	P
	Model identification or type reference .....	See attachment no.1	P
	Symbol for Class II equipment only .....	See rating label	P
	Other markings and symbols .....	See rating label	P
1.7.2	Safety instructions and marking		P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	Mentioned in user manual	P
1.7.2.3	Overcurrent protective device	Pluggable equipment type A	N/A
1.7.2.4	IT power distribution systems	Only for Norway	P
1.7.2.5	Operator access with a tool	No such areas	N/A
1.2.7.6	Ozone		N/A
1.7.3	Short duty cycles	Continuous operation	N/A
1.7.4	Supply voltage adjustment .....	Only one supply voltage range	N/A
	Methods and means of adjustment; reference to installation instructions .....		N/A
1.7.5	Power outlets on the equipment .....	No such components	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....	"F1" and "T1A/250V" marked near current fuse	P
1.7.7	Wiring terminals		N/A
1.7.7.1	Protective earthing and bonding terminals .....	No such terminals	N/A
1.7.7.2	Terminals for a.c. mains supply conductors	No such terminals	N/A
1.7.7.3	Terminals for d.c. mains supply conductors	No such terminals	N/A
1.7.8	Controls and indicators		N/A
1.7.8.1	Identification, location and marking .....		N/A
1.7.8.2	Colours .....		N/A
1.7.8.3	Symbols according to IEC 60417 .....		N/A
1.7.8.4	Markings using figures .....		N/A
1.7.9	Isolation of multiple power sources .....	Only one power source	N/A
1.7.10	Thermostats and other regulating devices .....		N/A



## IEC/EN 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
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1.7.11	Durability	Rubbing test for 15 s with water then for 15 s with petroleum spirit	P
1.7.12	Removable parts	Rating label stick on enclosure	P
1.7.13	Replaceable batteries .....: Language(s) .....	No batteries	N/A
			—
1.7.14	Equipment for restricted access locations .....		N/A

2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts		P
	Test by inspection .....		P
	Test with test finger (Figure 2A) .....	Hazardous parts not accessible	P
	Test with test pin (Figure 2B) .....	Hazardous parts not accessible	P
	Test with test probe (Figure 2C) .....		N/A
2.1.1.2	Battery compartments		N/A
2.1.1.3	Access to ELV wiring		N/A
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)		—
2.1.1.4	Access to hazardous voltage circuit wiring	The internal wiring is inaccessible to user	P
2.1.1.5	Energy hazards .....	3.12VA (MN-A003-A090) 5.66VA (MN-A001-A080) Limit: 240 VA	P
2.1.1.6	Manual controls	No such devices	N/A
2.1.1.7	Discharge of capacitors in equipment		P
	Measured voltage (V); time-constant (s).....:	No X capacitor between L and N	—
2.1.1.8	Energy hazards – d.c. mains supply		N/A
	a) Capacitor connected to the d.c. mains supply ..:		N/A
	b) Internal battery connected to the d.c. mains supply .....		N/A
2.1.1.9	Audio amplifiers .....		N/A
2.1.2	Protection in service access areas		N/A



## IEC/EN 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
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2.1.3	Protection in restricted access locations		N/A
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2.2	SELV circuits		P
2.2.1	General requirements		P
2.2.2	Voltages under normal conditions (V) .....	(see appended table 2.2.2)	P
2.2.3	Voltages under fault conditions (V) .....	(see appended table 2.2.3)	P
2.2.4	Connection of SELV circuits to other circuits .....	SELV circuits	P

2.3	TNV circuits		N/A
2.3.1	Limits	No TNV circuits	N/A
	Type of TNV circuits .....		—
2.3.2	Separation from other circuits and from accessible parts		N/A
2.3.2.1	General requirements		N/A
2.3.2.2	Protection by basic insulation		N/A
2.3.2.3	Protection by earthing		N/A
2.3.2.4	Protection by other constructions .....		N/A
2.3.3	Separation from hazardous voltages		N/A
	Insulation employed .....		—
2.3.4	Connection of TNV circuits to other circuits		N/A
	Insulation employed .....		—
2.3.5	Test for operating voltages generated externally		N/A

2.4	Limited current circuits		P
2.4.1	General requirements	Figure D.1 of annex D	P
2.4.2	Limit values	0.7mA peak	P
	Frequency (Hz).....	60	—
	Measured current (mA) .....	0.216	—
	Measured voltage (V) .....	0.108	—
	Measured circuit capacitance (nF or $\mu$ F).....	1000pF	—
2.4.3	Connection of limited current circuits to other circuits		P

2.5	Limited power sources		P
	a) Inherently limited output		P
	b) Impedance limited output		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
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	c) Regulating network limited output under normal operating and single fault condition	(see appended table 2.5)	P
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA) .....	(see appended table 2.5)	—
	Current rating of overcurrent protective device (A) ..		—

2.6	Provisions for earthing and bonding		N/A
2.6.1	Protective earthing	Class II equipment	N/A
2.6.2	Functional earthing		N/A
2.6.3	Protective earthing and protective bonding conductors		N/A
2.6.3.1	General		N/A
2.6.3.2	Size of protective earthing conductors		N/A
	Rated current (A), cross-sectional area ( $\text{mm}^2$ ), AWG .....		—
2.6.3.3	Size of protective bonding conductors		N/A
	Rated current (A), cross-sectional area ( $\text{mm}^2$ ), AWG .....		—
	Protective current rating (A), cross-sectional area ( $\text{mm}^2$ ), AWG .....		—
2.6.3.4	Resistance of earthing conductors and their terminations; resistance ( $\Omega$ ), voltage drop (V), test current (A), duration (min) .....		N/A
2.6.3.5	Colour of insulation.....:		N/A
2.6.4	Terminals		N/A
2.6.4.1	General		N/A
2.6.4.2	Protective earthing and bonding terminals		N/A
	Rated current (A), type, nominal thread diameter (mm) .....		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N/A
2.6.5	Integrity of protective earthing		N/A
2.6.5.1	Interconnection of equipment		N/A
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N/A
2.6.5.3	Disconnection of protective earth		N/A
2.6.5.4	Parts that can be removed by an operator		N/A



## IEC/EN 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
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2.6.5.5	Parts removed during servicing		N/A
2.6.5.6	Corrosion resistance		N/A
2.6.5.7	Screws for protective bonding		N/A
2.6.5.8	Reliance on telecommunication network or cable distribution system		N/A

2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	Integral part of equipment	P
	Instructions when protection relies on building installation	Protection by current fuse	N/A
2.7.2	Faults not simulated in 5.3.7		N/A
2.7.3	Short-circuit backup protection	Pluggable equipment type A	P
2.7.4	Number and location of protective devices .....	Case A, current fuse(F1) in series located in either of the two conductors which protects against overcurrent	P
2.7.5	Protection by several devices	Only one protection device	N/A
2.7.6	Warning to service personnel.....		N/A

2.8	Safety interlocks		N/A
2.8.1	General principles	No safety interlocks	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches and relays		N/A
2.8.7.1	Contact gaps (mm) .....		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A

2.9	Electrical insulation		P
2.9.1	Properties of insulating materials	No natural rubber, hygroscopic material and material containing asbestos used as insulation	P



## IEC/EN 60950-1

Clause	Requirement + Test	Result - Remark	Verdict
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2.9.2	Humidity conditioning		P
	Relative humidity (%), temperature (°C) ..... : 95%, 30°C, 48h		—
2.9.3	Grade of insulation		P
2.9.4	Separation from hazardous voltages		P
	Method(s) used ..... : Method 1 used		—

2.10	Clearances, creepage distances and distances through insulation		P
2.10.1	General		P
2.10.1.1	Frequency .....:		P
2.10.1.2	Pollution degrees .....: II		P
2.10.1.3	Reduced values for functional insulation		N/A
2.10.1.4	Intervening unconnected conductive parts		P
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		P
2.10.2.1	General		P
2.10.2.2	RMS working voltage	(see appended table 2.10.2)	P
2.10.2.3	Peak working voltage	(see appended table 2.10.2)	P
2.10.3	Clearances		P
2.10.3.1	General		P
2.10.3.2	Mains transient voltages		P
	a) AC mains supply .....: 2500V		P
	b) Earthed d.c. mains supplies .....:		N/A
	c) Unearthed d.c. mains supplies .....:		N/A
	d) Battery operation .....:		N/A
2.10.3.3	Clearances in primary circuits	(see appended table 2.10.3 and 2.10.4)	P
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply .....:		N/A
2.10.3.7	Transients from d.c. mains supply .....:		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems .....:		N/A
2.10.3.9	Measurement of transient voltage levels		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	a) Transients from a mains supply		N/A
	For an a.c. mains supply .....		N/A
	For a d.c. mains supply .....		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances		P
2.10.4.1	General		P
2.10.4.2	Material group and comparative tracking index		P
	CTI tests .....	Material group IIIb is assumed to be used	—
2.10.4.3	Minimum creepage distances	(see appended table 2.10.3 and 2.10.4)	P
2.10.5	Solid insulation		P
2.10.5.1	General		P
2.10.5.2	Distances through insulation	(see appended table 2.10.5)	P
2.10.5.3	Insulating compound as solid insulation		N/A
2.10.5.4	Semiconductor devices		N/A
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General		P
2.10.5.7	Separable thin sheet material		P
	Number of layers (pcs) .....	1 layer insulating tape used on T1 as basic insulation	—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		P
	Electric strength test	(see appended table 2.10.5)	—
2.10.5.11	Insulation in wound components		P
2.10.5.12	Wire in wound components		P
	Working voltage .....	(see appended table 2.10.3 and 2.10.4)	P
	a) Basic insulation not under stress .....		N/A
	b) Basic, supplementary, reinforced insulation .....		N/A
	c) Compliance with Annex U .....	Approved triple insulating wires used as secondary winding of T1	P
	Two wires in contact inside wound component; angle between 45° and 90° .....	The insulating tape is provided to protect against mechanical stress	P



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Clause	Requirement + Test	Result - Remark	Verdict
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		P
	Working voltage .....:		N/A
	- Basic insulation not under stress .....:		N/A
	- Supplementary, reinforced insulation .....:	Comply with 2.10.5.6	P
2.10.6	Construction of printed boards		P
2.10.6.1	Uncoated printed boards	(see appended table 2.10.3 and 2.10.4)	P
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs).....:		N/A
2.10.7	Component external terminations		N/A
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts	Pollution Degree 2	N/A

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	(see appended table 4.5.1)	P
3.1.2	Protection against mechanical damage	The output cord anchorage is satisfactory	P



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Clause	Requirement + Test	Result - Remark	Verdict
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3.1.3	Securing of internal wiring	The internal wires are soldered on PCB and fixed by glue compound additionally	P
3.1.4	Insulation of conductors		N/A
3.1.5	Beads and ceramic insulators	No such insulators	N/A
3.1.6	Screws for electrical contact pressure	No such screws	N/A
3.1.7	Insulating materials in electrical connections		N/A
3.1.8	Self-tapping and spaced thread screws		N/A
3.1.9	Termination of conductors		P
	10 N pull test	Not loosening	P
3.1.10	Sleeving on wiring		N/A

3.2	Connection to a mains supply		P
3.2.1	Means of connection	Mains plug that is part of direct plug-in equipment	P
3.2.1.1	Connection to an a.c. mains supply		P
3.2.1.2	Connection to a d.c. mains supply		N/A
3.2.2	Multiple supply connections	Single mains supply	N/A
3.2.3	Permanently connected equipment	Not permanently connected equipment	N/A
	Number of conductors, diameter of cable and conduits (mm) .....		—
3.2.4	Appliance inlets	Direct plug-in equipment	N/A
3.2.5	Power supply cords	Direct plug-in equipment	N/A
3.2.5.1	AC power supply cords		N/A
	Type .....		—
	Rated current (A), cross-sectional area ( $\text{mm}^2$ ), AWG .....		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N) .....		—
	Longitudinal displacement (mm) .....		—
3.2.7	Protection against mechanical damage		N/A
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g) .....		—



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Clause	Requirement + Test	Result - Remark	Verdict
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	Radius of curvature of cord (mm)..... : .....		—
3.2.9	Supply wiring space		N/A

3.3	Wiring terminals for connection of external conductors		N/A
3.3.1	Wiring terminals		N/A
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals		N/A
3.3.4	Conductor sizes to be connected		N/A
	Rated current (A), cord/cable type, cross-sectional area (mm <sup>2</sup> ).....: .....		—
3.3.5	Wiring terminal sizes		N/A
	Rated current (A), type, nominal thread diameter (mm) .....: .....		—
3.3.6	Wiring terminal design		N/A
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A

3.4	Disconnection from the mains supply		P
3.4.1	General requirement		P
3.4.2	Disconnect devices	Mains plug that is part of direct plug-in equipment	P
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized	No parts remain energized after disconnect from mains	N/A
3.4.5	Switches in flexible cords	No flexible cord	N/A
3.4.6	Number of poles - single-phase and d.c. equipment	Single – phase equipment	P
3.4.7	Number of poles - three-phase equipment		N/A
3.4.8	Switches as disconnect devices		N/A
3.4.9	Plugs as disconnect devices		N/A
3.4.10	Interconnected equipment		N/A
3.4.11	Multiple power sources		N/A

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits ..... : .....	SELV circuits	P



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Clause	Requirement + Test	Result - Remark	Verdict
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3.5.3	ELV circuits as interconnection circuits	No ELV circuits	N/A
3.5.4	Data ports for additional equipment		N/A

4	PHYSICAL REQUIREMENTS	P
4.1	Stability	N/A
	Angle of 10°	Direct plug-in equipment
	Test force (N) .....	N/A

4.2	Mechanical strength	P
4.2.1	General	P
4.2.2	Steady force test, 10 N	Applied to component when measuring creepage distances and clearances
4.2.3	Steady force test, 30 N	N/A
4.2.4	Steady force test, 250 N	Applied to enclosure, no hazards occurs
4.2.5	Impact test	Direct plug-in equipment
	Fall test	N/A
	Swing test	N/A
4.2.6	Drop test; height (mm) .....	Enclosure did not damage, no hazard occurs
4.2.7	Stress relief test	Tested at 70°C, 7 h for enclosure, no hazards occurs. enclosure material: see table 1.5.1
4.2.8	Cathode ray tubes	No such devices
	Picture tube separately certified .....	N/A
4.2.9	High pressure lamps	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) .....	No such devices
		N/A

4.3	Design and construction	P
4.3.1	Edges and corners	Round and smooth
4.3.2	Handles and manual controls; force (N).....:	N/A
4.3.3	Adjustable controls	No such controls
4.3.4	Securing of parts	Enclosure sealed reliably
4.3.5	Connection by plugs and sockets	Output connector does not comply with IEC 60083 and IEC 60320



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Clause	Requirement + Test	Result - Remark	Verdict
4.3.6	Direct plug-in equipment		P
	Torque ..... : Max. 0.05Nm Limit: 0.25Nm		—
	Compliance with the relevant mains plug standard :	See attachment no. 2	P
4.3.7	Heating elements in earthed equipment	No heating elements, not earthed equipment	N/A
4.3.8	Batteries	No containing battery	N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	No insulation exposed to oil and grease	N/A
4.3.10	Dust, powders, liquids and gases	Equipment do not produce dust, not use powder, liquid and gas	N/A
4.3.11	Containers for liquids or gases	No containers	N/A
4.3.12	Flammable liquids ..... : Quantity of liquid (l) ..... : Flash point (°C) .....		N/A
			N/A
			N/A
4.3.13	Radiation		N/A
4.3.13.1	General		N/A
4.3.13.2	Ionizing radiation		N/A
	Measured radiation (pA/kg) .....		—
	Measured high-voltage (kV) .....		—
	Measured focus voltage (kV) .....		—
	CRT markings .....		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials		N/A
	Part, property, retention after test, flammability classification .....		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....		N/A
4.3.13.5	Laser (including LEDs)		N/A
	Laser class .....		—
4.3.13.6	Other types .....		N/A
4.4	Protection against hazardous moving parts		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
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4.4.1	General	No hazardous moving parts	N/A
4.4.2	Protection in operator access areas .....		N/A
4.4.3	Protection in restricted access locations .....		N/A
4.4.4	Protection in service access areas		N/A

4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests		P
	Normal load condition per Annex L .....	At rated output load	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat .....	(see appended table 4.5.5)	P

4.6	Openings in enclosures		N/A
4.6.1	Top and side openings	No top and side openings	N/A
	Dimensions (mm) .....		—
4.6.2	Bottoms of fire enclosures	No bottom openings	N/A
	Construction of the bottom, dimensions (mm) ...		—
4.6.3	Doors or covers in fire enclosures		N/A
4.6.4	Openings in transportable equipment		N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) .....		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes		N/A
	Conditioning temperature (°C), time (weeks).....		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Method 1 used	P
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	P
	Method 2, application of all of simulated fault condition tests		N/A
4.7.2	Conditions for a fire enclosure		P



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Clause	Requirement + Test	Result - Remark	Verdict
4.7.2.1	Parts requiring a fire enclosure	Components in primary circuit, etc.	P
4.7.2.2	Parts not requiring a fire enclosure	Transformer, internal wiring insulated with PVC, etc.	P
4.7.3	Materials		P
4.7.3.1	General		P
4.7.3.2	Materials for fire enclosures	Enclosure material rated 94V-1, approved by UL	P
4.7.3.3	Materials for components and other parts outside fire enclosures	Output connector insulated with PVC	P
4.7.3.4	Materials for components and other parts inside fire enclosures	PCB rated min.94V-1, bobbin material rated 94V-0, approved by UL	P
4.7.3.5	Materials for air filter assemblies	No such devices	N/A
4.7.3.6	Materials used in high-voltage components	No such components	N/A

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General		P
5.1.2	Configuration of equipment under test (EUT)		P
5.1.2.1	Single connection to an a.c. mains supply		P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Figure 5A used	P
5.1.4	Application of measuring instrument	Figure 4 of IEC 60990 used	P
5.1.5	Test procedure	Measured between each pole of live parts and output terminal, between each pole of live parts and enclosure	P
5.1.6	Test measurements		P
	Supply voltage (V) .....	264V, 60Hz	—
	Measured touch current (mA) .....	Max. 0.085 (to output terminal) Max. 0.005 (to enclosure)	—
	Max. allowed touch current (mA) .....	0.25	—
	Measured protective conductor current (mA) .....		—
	Max. allowed protective conductor current (mA)....:		—



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Clause	Requirement + Test	Result - Remark	Verdict
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General .....		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks	No telecommunication network connection ports on equipment	N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V) .....	—	—
	Measured touch current (mA) .....	—	—
	Max. allowed touch current (mA) .....	—	—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports .....		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A

5.2	Electric strength	P
5.2.1	General	(see appended table 5.2)
5.2.2	Test procedure	(see appended table 5.2)

5.3	Abnormal operating and fault conditions	P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)
5.3.2	Motors	No motors
5.3.3	Transformers	(see appended Annex C)
5.3.4	Functional insulation.....:	comply with the requirements of a) and c)
5.3.5	Electromechanical components	No such components
5.3.6	Audio amplifiers in ITE .....	N/A
5.3.7	Simulation of faults	(see appended table 5.3)
5.3.8	Unattended equipment	No thermostat, temperature limiter and thermal cut-out incorporated in equipment
5.3.9	Compliance criteria for abnormal operating and fault conditions	P



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Clause	Requirement + Test	Result - Remark	Verdict
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5.3.9.1	During the tests	During the test, no fire propagated beyond equipment; not emit molten metal and enclosure did not deform	P
5.3.9.2	After the tests	After the test, no any insulation damaged and withstand dielectric strength test AC3000V between live parts and enclosure, between live parts and output terminal	P

6	CONNECTION TO TELECOMMUNICATION NETWORKS	N/A
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment	N/A
6.1.1	Protection from hazardous voltages	N/A
6.1.2	Separation of the telecommunication network from earth	N/A
6.1.2.1	Requirements	N/A
	Supply voltage (V) .....	—
	Current in the test circuit (mA) .....	—
6.1.2.2	Exclusions .....	N/A

6.2	Protection of equipment users from overvoltages on telecommunication networks	N/A
6.2.1	Separation requirements	N/A
6.2.2	Electric strength test procedure	N/A
6.2.2.1	Impulse test	N/A
6.2.2.2	Steady-state test	N/A
6.2.2.3	Compliance criteria	N/A

6.3	Protection of the telecommunication wiring system from overheating	N/A
	Max. output current (A) .....	—
	Current limiting method .....	—

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS	N/A
7.1	General	N/A
7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples ..... : Wall thickness (mm) ..... :		—
A.1.2	Conditioning of samples; temperature (°C) ..... :		N/A
A.1.3	Mounting of samples ..... :		N/A
A.1.4	Test flame (see IEC 60695-11-3) Flame A, B, C or D ..... :		N/A
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria Sample 1 burning time (s)..... : Sample 2 burning time (s)..... : Sample 3 burning time (s)..... :		N/A
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material ..... : Wall thickness (mm) ..... :		—
A.2.2	Conditioning of samples; temperature (°C) ..... :		N/A
A.2.3	Mounting of samples ..... :		N/A
A.2.4	Test flame (see IEC 60695-11-4) Flame A, B or C ..... :		N/A
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria Sample 1 burning time (s)..... : Sample 2 burning time (s)..... : Sample 3 burning time (s)..... :		N/A
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9 Sample 1 burning time (s)..... : Sample 2 burning time (s)..... : Sample 3 burning time (s)..... :		N/A
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
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A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements	No motor used	N/A
	Position ..... : .....		—
	Manufacturer ..... : .....		—
	Type ..... : .....		—
	Rated values ..... : .....		—
B.2	Test conditions		N/A
B.3	Maximum temperatures		N/A
B.4	Running overload test		N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days) ..... : .....		—
	Electric strength test; test voltage (V) ..... : .....		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V) ..... : .....		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V) ..... : .....		N/A
B.8	Test for motors with capacitors		N/A
B.9	Test for three-phase motors		N/A
B.10	Test for series motors		N/A
	Operating voltage (V) ..... : .....		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)	P
	Position ..... : .....	T1 (in the complete power supply unit)



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Clause	Requirement + Test	Result - Remark	Verdict
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	Manufacturer ..... :  .....	1. XIAMEN COST ELECTRON CO., LTD. 2. Fuzhou Flying Power Unit Co., Ltd. 3. XIAMEN K.M.ELECTRONICS CO., LTD. 4. JianQiao (LongYan) Co., Ltd. 5. JIASHENGYUAN ELECTRONICS CO., LTD.	—
	Type ..... :  .....	See table 1.5.1	—
	Rated values ..... :  .....	Class A	—
	Method of protection ..... :  .....	Electronic protection	—
C.1	Overload test	(see appended table 5.3)	P
C.2	Insulation	(see appended table 5.2)	P
	Protection from displacement of windings ..... :  .....	Protected by bobbin, insulating tape	P

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)	P
D.1	Measuring instrument	P
D.2	Alternative measuring instrument	N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)	N/A
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F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)	P
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G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES	N/A
G.1	Clearances	N/A
G.1.1	General	N/A
G.1.2	Summary of the procedure for determining minimum clearances	N/A
G.2	Determination of mains transient voltage (V)	N/A
G.2.1	AC mains supply ..... :  .....	N/A
G.2.2	Earthed d.c. mains supplies ..... :  .....	N/A



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Clause	Requirement + Test	Result - Remark	Verdict
G.2.3	Unearthed d.c. mains supplies ..... :		N/A
G.2.4	Battery operation ..... :		N/A
G.3	Determination of telecommunication network transient voltage (V) ..... :		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks .... :		N/A
G.4.2	Transients from telecommunication networks ..... :		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A
G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances ..... :		N/A

H	ANNEX H, IONIZING RADIATION (see 4.3.13)	N/A
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J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)	N/A
	Metal(s) used ..... :	—

K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)	N/A
K.1	Making and breaking capacity	N/A
K.2	Thermostat reliability; operating voltage (V) ..... :	N/A
K.3	Thermostat endurance test; operating voltage (V) ..... :	N/A
K.4	Temperature limiter endurance; operating voltage (V) ..... :	N/A
K.5	Thermal cut-out reliability	N/A
K.6	Stability of operation	N/A

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)	P
L.1	Typewriters	N/A
L.2	Adding machines and cash registers	N/A
L.3	Erasers	N/A
L.4	Pencil sharpeners	N/A



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L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		P

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)	N/A
M.1	Introduction	N/A
M.2	Method A	N/A
M.3	Method B	N/A
M.3.1	Ringing signal	N/A
M.3.1.1	Frequency (Hz) .....	—
M.3.1.2	Voltage (V) .....	—
M.3.1.3	Cadence; time (s), voltage (V) .....	—
M.3.1.4	Single fault current (mA) .....	—
M.3.2	Tripping device and monitoring voltage .....	N/A
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage	N/A
M.3.2.2	Tripping device	N/A
M.3.2.3	Monitoring voltage (V) .....	N/A

N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)	N/A
N.1	ITU-T impulse test generators	N/A
N.2	IEC 60065 impulse test generator	N/A

P	ANNEX P, NORMATIVE REFERENCES	—
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Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)	P
	a) Preferred climatic categories .....	Approved VDRs used (VR1, optional)
	b) Maximum continuous voltage .....	Approved VDRs used (VR1, optional)
	c) Pulse current .....	N/A



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R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		P
		Approved triple insulated wire used as secondary winding of T1	—

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		P
V.1	Introduction		P
V.2	TN power distribution systems		P

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		P
X.1	Determination of maximum input current		P



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X.2	Overload test procedure		P
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Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)	N/A
Y.1	Test apparatus ..... : .....	N/A
Y.2	Mounting of test samples ..... : .....	N/A
Y.3	Carbon-arc light-exposure apparatus ..... : .....	N/A
Y.4	Xenon-arc light exposure apparatus ..... : .....	N/A

Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)	P
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AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)	N/A
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BB	ANNEX BB, CHANGES IN THE SECOND EDITION	—
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EN 60950-1:2006 – CENELEC COMMON MODIFICATIONS																																																																													
Contents	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations				P																																																																								
General	Delete all the “country” notes in the reference document according to the following list: <table><tr><td>1.4.8</td><td>Note 2</td><td>1.5.1</td><td>Note 2 &amp; 3</td><td>1.5.7.1</td><td>Note</td></tr><tr><td>1.5.8</td><td>Note 2</td><td>1.5.9.4</td><td>Note</td><td>1.7.2.1</td><td>Note 4, 5 &amp; 6</td></tr><tr><td>2.2.3</td><td>Note</td><td>2.2.4</td><td>Note</td><td>2.3.2</td><td>Note</td></tr><tr><td>2.3.2.1</td><td>Note 2</td><td>2.3.4</td><td>Note 2</td><td>2.6.3.3</td><td>Note 2 &amp; 3</td></tr><tr><td>2.7.1</td><td>Note</td><td>2.10.3.2</td><td>Note 2</td><td>2.10.5.13</td><td>Note 3</td></tr><tr><td>3.2.1.1</td><td>Note</td><td>3.2.4</td><td>Note 3.</td><td>2.5.1</td><td>Note 2</td></tr><tr><td>4.3.6</td><td>Note 1 &amp; 2</td><td>4.7</td><td>Note 4</td><td>4.7.2.2</td><td>Note</td></tr><tr><td>4.7.3.1</td><td>Note 2</td><td>5.1.7.1</td><td>Note 3 &amp; 4</td><td>5.3.7</td><td>Note 1</td></tr><tr><td>6</td><td>Note 2 &amp; 5</td><td>6.1.2.1</td><td>Note 2</td><td>6.1.2.2</td><td>Note</td></tr><tr><td>6.2.2</td><td>Note 6.</td><td>2.2.1</td><td>Note 2</td><td>6.2.2.2</td><td>Note</td></tr><tr><td>7.1</td><td>Note 3</td><td>7.2</td><td>Note</td><td>7.3</td><td>Note 1 &amp; 2</td></tr><tr><td>G.2.1</td><td>Note 2</td><td>Annex H</td><td>Note 2</td><td></td><td></td></tr></table>				1.4.8	Note 2	1.5.1	Note 2 & 3	1.5.7.1	Note	1.5.8	Note 2	1.5.9.4	Note	1.7.2.1	Note 4, 5 & 6	2.2.3	Note	2.2.4	Note	2.3.2	Note	2.3.2.1	Note 2	2.3.4	Note 2	2.6.3.3	Note 2 & 3	2.7.1	Note	2.10.3.2	Note 2	2.10.5.13	Note 3	3.2.1.1	Note	3.2.4	Note 3.	2.5.1	Note 2	4.3.6	Note 1 & 2	4.7	Note 4	4.7.2.2	Note	4.7.3.1	Note 2	5.1.7.1	Note 3 & 4	5.3.7	Note 1	6	Note 2 & 5	6.1.2.1	Note 2	6.1.2.2	Note	6.2.2	Note 6.	2.2.1	Note 2	6.2.2.2	Note	7.1	Note 3	7.2	Note	7.3	Note 1 & 2	G.2.1	Note 2	Annex H	Note 2			P
1.4.8	Note 2	1.5.1	Note 2 & 3	1.5.7.1	Note																																																																								
1.5.8	Note 2	1.5.9.4	Note	1.7.2.1	Note 4, 5 & 6																																																																								
2.2.3	Note	2.2.4	Note	2.3.2	Note																																																																								
2.3.2.1	Note 2	2.3.4	Note 2	2.6.3.3	Note 2 & 3																																																																								
2.7.1	Note	2.10.3.2	Note 2	2.10.5.13	Note 3																																																																								
3.2.1.1	Note	3.2.4	Note 3.	2.5.1	Note 2																																																																								
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4.7.3.1	Note 2	5.1.7.1	Note 3 & 4	5.3.7	Note 1																																																																								
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G.2.1	Note 2	Annex H	Note 2																																																																										
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.				N/A																																																																								
1.5.1	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC				P																																																																								
1.7.2.1	Add the following NOTE: NOTE Z1 In addition, the instructions shall include, as far as applicable, a warning that excessive sound pressure from earphones and headphones can cause hearing loss				N/A																																																																								



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2.7.1	<p>Replace the subclause as follows:</p> <p><b>Basic requirements</b></p> <p>To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c):</p> <p>a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment;</p> <p>b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;</p> <p>c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions.</p> <p>If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.</p>		P											
2.7.2	This subclause has been declared 'void'.		P											
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A											
3.2.5.1	<p>Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2".</p> <p>In Table 3B, replace the first four lines by the following:</p> <table border="1"><tr><td>Up to and including 6</td><td></td><td>0,75 <sup>a)</sup></td><td></td></tr><tr><td>Over 6 up to and including 10</td><td>(0,75)<sup>b)</sup></td><td>1,0</td><td></td></tr><tr><td>Over 10 up to and including 16</td><td>(1,0)<sup>c)</sup></td><td>1,5</td><td></td></tr></table> <p>In the conditions applicable to Table 3B delete the words "in some countries" in condition <sup>a)</sup>.</p> <p>In NOTE 1, applicable to Table 3B, delete the second sentence.</p>	Up to and including 6		0,75 <sup>a)</sup>		Over 6 up to and including 10	(0,75) <sup>b)</sup>	1,0		Over 10 up to and including 16	(1,0) <sup>c)</sup>	1,5		N/A
Up to and including 6		0,75 <sup>a)</sup>												
Over 6 up to and including 10	(0,75) <sup>b)</sup>	1,0												
Over 10 up to and including 16	(1,0) <sup>c)</sup>	1,5												
3.3.4	<p>In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following:</p> <table border="1"><tr><td>Over 10 up to and including 16</td><td>1,5 to 2,5</td><td>1,5 to 4</td><td></td></tr></table> <p>Delete the fifth line: conductor sizes for 13 to 16 A.</p>	Over 10 up to and including 16	1,5 to 2,5	1,5 to 4			N/A							
Over 10 up to and including 16	1,5 to 2,5	1,5 to 4												
4.3.13.6	Add the following NOTE: <p>NOTE Z1 Attention is drawn to 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz. Standards taking into account this Recommendation which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.</p>		N/A											



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Annex H	<p>Replace the last paragraph of this annex by:</p> <p>At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level.</p> <p>Replace the notes as follows:</p> <p>NOTE These values appear in Directive 96/29/Euratom.</p> <p>Delete NOTE 2.</p>		N/A
Biblio-graphy	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—
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ZB	SPECIAL NATIONAL CONDITIONS	P
1.2.4.1	In <b>Denmark</b> , certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.	N/A
1.5.7.1	In <b>Finland, Norway and Sweden</b> , resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2.	N/A
1.5.8	In <b>Norway</b> , due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).	N/A
1.5.9.4	In <b>Finland, Norway and Sweden</b> , the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.	N/A
1.7.2.1	<p>In <b>Finland, Norway and Sweden</b>, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.</p> <p>The marking text in the applicable countries shall be as follows:</p> <p>In Finland: "Laite on liitetävä suojaamadoituskoskettimilla varustettuun pistorasiaan"</p> <p>In Norway: "Apparatet må tilkoples jordet stikkontakt"</p> <p>In Sweden: "Apparaten skall anslutas till jordat uttag"</p>	N/A
1.7.5	In <b>Denmark</b> , socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a.	N/A
2.2.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	N/A
2.3.2	In <b>Finland, Norway and Sweden</b> there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.	N/A
2.3.4	In <b>Norway</b> , for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.	N/A



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2.6.3.3	In the <b>United Kingdom</b> , the current rating of the circuit shall be taken as 13 A, not 16 A.		P																								
2.7.1	In the <b>United Kingdom</b> , to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A																								
2.10.5.13	In <b>Finland, Norway</b> and <b>Sweden</b> , there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A																								
3.2.1.1	<p>In <b>Switzerland</b>, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets:</p> <table><tr><td>SEV 6532-2.1991</td><td>Plug Type 15</td><td>3P+N+PE</td><td>250/400 V, 10 A</td></tr><tr><td>SEV 6533-2.1991</td><td>Plug Type 11</td><td>L+N</td><td>250 V, 10 A</td></tr><tr><td>SEV 6534-2.1991</td><td>Plug Type 12</td><td>L+N+PE</td><td>250 V, 10 A</td></tr></table> <p>In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998:</p> <table><tr><td>SEV 5932-2.1998</td><td>Plug Type 25</td><td>3L+N+PE</td><td>230/400 V, 16 A</td></tr><tr><td>SEV 5933-2.1998</td><td>Plug Type 21</td><td>L+N</td><td>250 V, 16 A</td></tr><tr><td>SEV 5934-2.1998</td><td>Plug Type 23</td><td>L+N+PE</td><td>250 V, 16 A</td></tr></table>	SEV 6532-2.1991	Plug Type 15	3P+N+PE	250/400 V, 10 A	SEV 6533-2.1991	Plug Type 11	L+N	250 V, 10 A	SEV 6534-2.1991	Plug Type 12	L+N+PE	250 V, 10 A	SEV 5932-2.1998	Plug Type 25	3L+N+PE	230/400 V, 16 A	SEV 5933-2.1998	Plug Type 21	L+N	250 V, 16 A	SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A		N/A
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SEV 5934-2.1998	Plug Type 23	L+N+PE	250 V, 16 A																								
3.2.1.1	<p>In <b>Denmark</b>, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a.</p> <p>If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.</p>		N/A																								
3.2.1.1	<p>In <b>Spain</b>, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994.</p> <p>Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993.</p> <p>CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994.</p> <p>If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.</p>		N/A																								



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3.2.1.1	<p>In the <b>United Kingdom</b>, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations.</p> <p>NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.</p>		N/A
3.2.1.1	<p>In <b>Ireland</b>, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.</p>		N/A
3.2.4	In <b>Switzerland</b> , for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the <b>United Kingdom</b> , a power supply cord with conductor of 1,25 mm <sup>2</sup> is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	<p>In the <b>United Kingdom</b>, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is:</p> <ul style="list-style-type: none"><li>• 1,25 mm<sup>2</sup> to 1,5 mm<sup>2</sup> nominal cross-sectional area.</li></ul>		N/A
4.3.6	<p>In the <b>United Kingdom</b>, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.</p>		N/A
4.3.6	<p>In <b>Ireland</b>, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.</p>		N/A
5.1.7.1	<p>In <b>Finland, Norway and Sweden</b> TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:</p> <ul style="list-style-type: none"><li>• STATIONARY PLUGGABLE EQUIPMENT TYPE A that<ul style="list-style-type: none"><li>○ is intended to be used in a RESTRICTED ACCESS LOCATION where<ul style="list-style-type: none"><li>○ equipotential bonding has been applied, for example, in a telecommunication centre; and</li><li>○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and</li><li>○ is provided with instructions for the installation of that conductor by a SERVICE PERSON;</li></ul></li></ul></li><li>• STATIONARY PLUGGABLE EQUIPMENT TYPE B;</li><li>• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.</li></ul>		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1	<p>In <b>Finland, Norway and Sweden</b>, add the following text between the first and second paragraph of the compliance clause:</p> <p>If this insulation is solid, including insulation forming part of a component, it shall at least consist of either</p> <ul style="list-style-type: none"><li>- two layers of thin sheet material, each of which shall pass the electric strength test below, or</li><li>- one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below.</li></ul> <p>If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition</p> <ul style="list-style-type: none"><li>- passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and</li><li>- is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.</li></ul> <p>It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.</p> <p>A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions:</p> <ul style="list-style-type: none"><li>- the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1;</li><li>- the additional testing shall be performed on all the test specimens as described in EN 132400;</li><li>- the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.</li></ul>		N/A
6.1.2.2	In <b>Finland, Norway and Sweden</b> , the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N/A
7.2	In <b>Finland, Norway and Sweden</b> , for requirements see 6.1.2.1 and 6.1.2.2 of this annex.  The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
7.3	In <b>Norway and Sweden</b> , there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.		N/A
7.3	In <b>Norway</b> , for installation conditions see EN 60728-11:2005.		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
ZC	A-DEVIATIONS (informative)		P
1.5.1	<b>Sweden</b> (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.		N/A
1.5.1	<b>Switzerland</b> (Ordinance on environmentally hazardous substances SR 814.081, Annex 1.7, Mercury - Annex 1.7 of SR 814.81 applies for mercury.) Add the following: NOTE In Switzerland, switches containing mercury such as thermostats, relays and level controllers are not allowed.		N/A
1.7.2.1	<b>Denmark</b> (Heavy Current Regulations) Supply cords of CLASS I EQUIPMENT, which is delivered without a plug, must be provided with a visible tag with the following text:  Vigtigt! Lederen med grøn/gul isolation må kun tilsluttes en klemme mæret  If essential for the safety of the equipment, the tag must in addition be provided with a diagram, which shows the connection of the other conductors, or be provided with the following text: "For tilslutning af de øvrige ledere, se medfølgende installationsvejledning."		N/A
1.7.2.1	<b>Germany</b> (Gesetz über technische Arbeitsmittel und Verbraucherprodukte (Geräte- und Produktsicherheitsgesetz – GPSG) [Law on technical labour equipment and consumer products], of 6th January 2004, Section 2, Article 4, Clause (4), Item 2). If for the assurance of safety and health certain rules during use, amending or maintenance of a technical labour equipment or readymade consumer product are to be followed, a manual in German language has to be delivered when placing the product on the market. Of this requirement, rules for use even only by SERVICE PERSONS are not exempted.		P
1.7.5	<b>Denmark</b> (Heavy Current Regulations) With the exception of CLASS II EQUIPMENT provided with a socket outlet in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-4a, CLASS II EQUIPMENT shall not be fitted with socket-outlets for providing power to other equipment.		N/A
1.7.13	<b>Switzerland</b> (Ordinance on chemical hazardous risk reduction SR 814.81, Annex 2.15 Batteries) Annex 2.15 of SR 814.81 applies for batteries.		N/A
5.1.7.1	<b>Denmark</b> (Heavy Current Regulations, Chapter 707, clause 707.4) TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for PERMANENTLY CONNECTED EQUIPMENT and PLUGGABLE EQUIPMENT TYPE B.		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
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1.5.1	TABLE: list of critical components				P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity1)
1. Enclosure	SABIC INNOVATIVE PLASTICS US L L C	SE100, PPHOX	V-1, 80°C, thickness 2.0 min.	UL	UL E121562
2. Plug holder	SABIC INNOVATIVE PLASTICS US L L C	SE1X	V-1, 105°C	UL	UL E161759
3. PCB	FUQING THREE SUN ELECTRONICS CO LTD	SMS-1	V-0, 130°C	UL	UL E217670
(Alternative)	Various	Various	Min. V-1, 130°C	UL	UL
4. Fuse (F1)	Conquer Electronics Co., Ltd.	MST	T1A, 250Vac, breaking capacity: 35A	IEC 60127-1, IEC 60127-3	VDE 40017118
(Alternative)	Cooper Bussmann Inc.	SS5	T1A, 250Vac, breaking capacity: 35A	IEC 60127-1, IEC 60127-3	VDE 40015513
5.Varistor (VR1, optional)	Thinking Electronic Industrial Co., Ltd.	TVR07471 K	Min. 300Vac, 385Vdc, 40/85/56	IEC 61051-1; IEC 61051-2; IEC 61051-2- 2;	VDE 5944
6. Y Capacitor (C50, Optional)	Success Electronics Co., Ltd.	SE	Max. 1000pF 250V, Y1, 30/125/56	IEC 60384-14	VDE 40008996
(Alternative)	TDK-EPC Corporation	CD	Max. 1000pF, 250V, Y1, 25/125/56/B	IEC 60384-14	VDE 124321
(Alternative)	Xiamen Wanming Electronics Co., Ltd.	HJ, CK	Max. 1000PF, 250V, Y1, 25/125/21/C	IEC 60384-14	ENEC NO 1756
7. Capacitor (C1, C2)	Various	Various	Min. 400V, 105°C, 2.2μF- 6.8μF	--	--
8. Bridge Diode (CR1-CR4)	Various	Various	Min. 1A, min. 600V	--	--
9. Mosfet (Q1)	Various	Various	Min. 0.5A, min. 600V	--	--



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Clause	Requirement + Test			Result - Remark	Verdict
10. Output cord	XIAMEN JUNMENG TECHNOLOGY CO LTD	2464	Min. 28AWG, 80°C, min. 300V, VW-1	UL	UL E303887
(Alternative)	Various	2464	Min. 28AWG, 80°C, min. 300V, VW-1	UL	UL
11. Input wire	XIAMEN JUNMENG TECHNOLOGY CO LTD	1007	Min. 22AWG, 80°C, min. 300V	UL	UL E303887
(Alternative)	Various	1007	Min. 22AWG, 80°C, min. 300V	UL	UL
12. Line filter (L1, Optional)	Various	Various	3.3mH, 130°C	--	--
13. Transformer (T1)	XIAMEN COST ELECTRON CO., LTD.	MS13ES-X08	Class A NP: Ø0.15mmx160turns; NS: Ø0.25mmx15turns; NB: Ø0.15mmx33turns	--	Tested in appliance
(Alternative)	Fuzhou Flying Power Unit Co., Ltd.	MS13ES-X08	Class A NP: Ø0.15mmx160turns; NS: Ø0.25mmx15turns; NB: Ø0.15mmx33turns	--	Tested in appliance
(Alternative)	XIAMEN K.M.ELECTRONICS CO., LTD.	MS13ES-X08	Class A NP: Ø0.15mmx160turns; NS: Ø0.25mmx15turns; NB: Ø0.15mmx33turns	--	Tested in appliance
(Alternative)	JianQiao ( LongYan ) Co., Ltd.	MS13ES-X08	Class A NP: Ø0.15mmx160turns; NS: Ø0.25mmx15turns; NB: Ø0.15mmx33turns	--	Tested in appliance
(Alternative)	JIASHENGYUAN ELECTRONICS CO., LTD.	MS13ES-X08	Class A NP: Ø0.15mmx160turns; NS: Ø0.25mmx15turns; NB: Ø0.15mmx33turns	--	Tested in appliance
- Bobbin	Chang Chun Plastics Co., Ltd.	T375J, Phenolic	V-0, 150°C	UL	UL E59481
(Alternative)	Xiamen Keid Chemical Industry & Trade Co., Ltd.	KE3386B, Phenolic	V-0, 150°C	UL	UL E213440



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Clause	Requirement + Test		Result - Remark		Verdict
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-Magnet wire	PACIFIC ELECTRONIC WIRE & CABLE (SHENZHEN) CO LTD	UEW/U	130°C	UL	UL E201757
(Alternative)	Jung Shing Wire Co., Ltd.	UEW-2	130°C	UL	UL E174837
(Alternative)	WUXI JUFENG COMPOUND LINE CO LTD	xUEWN*	130°C	UL	UL E206882
(Alternative)	HENG YA ELECTRIC KUN SHAN LTD	LZ-UEWNB	130°C	UL	UL E245514
-Triple insulation wire	The Furukawa Electric Co., Ltd.	TEX-E	130°C	IEC 60065; IEC 60950-1	VDE 006735
-Insulation tape	3M Company Electrical Markets Div (EMD)	1350F-1	130°C	UL	UL E17385
(Alternative)	JINGJIANG YAHUA PRESURE SENSITIVE GLUE CO LTD	CT, PZ	130°C	UL	UL E165111
- Tubing	GREAT HOLDING INDUSTRIAL CO LTD	TFT	300V, 200°C, VW-1	UL	UL E156256
(Alternative)	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	WF	600V, 200°C, VW-1	UL	UL E203950
(Alternative)	FLUO TECH INDUSTRIES CO LTD	TFT	300V, 200°C, VW-1	UL	UL E175982
-Varnish	Hitachi Chemical Co., Ltd.	WP-2952F-2G	130°C	UL	UL E72979
(Alternative)	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	468-2FC+	Min. 130°C	UL	UL E87039

1.6.2		TABLE: electrical data (in normal conditions)				P
fuse #	Irated (A)	U (V)/ F (Hz)	P (W)	I (A)	Ifuse (A)	condition/status



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Clause	Requirement + Test				Result - Remark	Verdict
F1	--	90V/50Hz	3.61	0.065	0.065	At rated output load
F1	--	90V/60Hz	3.60	0.064	0.064	Ditto
F1	0.2	100V/50Hz	3.57	0.058	0.058	Ditto
F1	0.2	100V/60Hz	3.57	0.058	0.058	Ditto
F1	0.2	240V/50Hz	3.65	0.032	0.032	Ditto
F1	0.2	240V/60Hz	3.65	0.032	0.032	Ditto
F1	--	264V/50Hz	3.58	0.031	0.031	Ditto
F1	--	264V/60Hz	3.58	0.031	0.031	Ditto

2.2.2	TABLE: voltages measurement under normal condition				P
Transformer		Location		max. Voltage	Voltage Limitation
				V peak	V d.c.
T1		PinA--B		30.2	--
--		C52 pins		--	42.4V peak
				8.9	60V d.c.

2.2.3	TABLE: voltages measurement under fault condition				P
Location		Voltage measured (V)		Comments	
Output terminal V+ to V-		<1V		CR51 short-circuited, unit shut down immediately, no hazards	

2.5	TABLE: limited power source measurement				P				
<ul style="list-style-type: none"> <li>■ The output of the power supply is isolated from AC mains with an isolating transformer.</li> <li>■ The output is inherently limited in compliance with table 2B under normal and single fault conditions.</li> </ul>									
MN-A003-A090 (9V, 0.3A)									
Uoc= 8.89V		Limits ( $\leq$ 8A)		Limits ( $\leq$ 100VA)					
Under max. load condition		Max. 0.38A		Max. 3.12VA					
R11 short-circuited		Max. 0.65A		Max. 5.33VA					
MN-A001-A080 (7.5V, 0.3A)									
Uoc= 7.53V		Limits ( $\leq$ 8A)		Limits ( $\leq$ 100VA)					
Under max. load condition		Max. 0.76A		Max. 5.66VA					
R11 short-circuited		Max. 1.1 A		Max. 7.92VA					
Remark: The serious tests were recorded as above, refer to appended table 5.3 for the other tests.									



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Clause	Requirement + Test	Result - Remark	Verdict
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2.10.2 TABLE: working voltage measurement			
Location	RMS Voltage (V)	Peak Voltage (V)	Comments
T1 pin1-pinA	216	376	
T1 pin2-pinA	236	488	
T1 pin4-pinA	218	360	
T1 pin5-pinA	219	388	
T1 pin1-pinB	217	352	
T1 pin2-pinB	<u>241</u>	<u>512</u>	
T1 pin4-pinB	222	360	
T1 pin5-pinB	222	424	
C50 pri. pin-sec. pin	217	352	



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Clause	Requirement + Test	Result - Remark			Verdict
2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements				P
clearance cl and creepage distance dcr at/of:	Up (V)	U r.m.s. (V)	required cl (mm)	cl (mm)	required dcr (mm)
Poles of current fuse(F1) (FI)	<420	240	1.5	3.0	2.5
L and N before fuse (F1) (FI)	<420	240	1.5	3.6	2.5
Pri. trace and accessible enclosure (RI)	<420	240	4.0	5.5	5.0
C50 pri. pin and sec. pin (RI)	<420	240	4.0	6.8	5.0
Iron core of T1 and C52 surface (RI)	512	241	4.4	10.1	5.0
Surface of insulating tape wrapped on T1 and surface of C52 (SI)	512	241	2.2	4.8	2.5
The nearest trace between pri. circuit and sec. circuit (RI)	512	241	4.4	5.4	5.0
Remark: 1. The iron core of T1 is considered as primary hazardous live part. 2. FI: Functional insulation; SI: Supplementary insulation; RI: Reinforced insulation.					

2.10.5	TABLE: distance through insulation measurements	P		
distance through insulation di at/of:	U r.m.s. (V)	test voltage (V)	required di (mm)	di (mm)
Enclosure (RI)	240	AC 3000	≥0.4	2.0
Thin sheet material at/of:	U r.m.s. (V)	test voltage (V)	required layers	Layers
Each layer insulating tape used for T1 (BI)	241	AC 1780/1 layer	≥1	1
Remark: BI: Basic insulation; RI: Reinforced insulation.				



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Clause	Requirement + Test				Result - Remark		Verdict
4.3.8	TABLE: Batteries				N/A		
	The tests of 4.3.8 are applicable only when appropriate battery data is not available						
	Is it possible to install the battery in a reverse polarity position?						
	Non-rechargeable batteries			Rechargeable batteries			
	Discharging		Un-intentional charging	Charging		Discharging	Reversed charging
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition							
Max. current during fault condition							
Test results:						Verdict	
- Chemical leaks							
- Explosion of the battery							
- Emission of flame or expulsion of molten metal							
- Electric strength tests of equipment after completion of tests							
Supplementary information:							



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Clause	Requirement + Test	Result - Remark			Verdict
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4.5	TABLE: maximum temperature					P		
	test voltage (V) .....	A:90V/50Hz, vertical; B:90V/50Hz, horizontal; C:264V/60Hz, vertical; D:264V/60Hz, horizontal						
	Tamb1 (°C) .....	40	40	40	40	—		
	Tamb2 (°C) .....	40	40	40	40	—		
Temperature T of part/at:		Measured T (°C)				Allowed Tmax (°C)		
		A	B	C	D	—		
Plug holder		42.3	43.5	44.7	45.8	Ref.		
Input wire		45.7	47.1	45.9	47.3	80		
VR1 body		48.0	49.1	47.4	48.5	85		
PCB surface (near CR1)		50.9	51.9	49.9	50.8	130		
C1 body		50.8	52.0	49.4	50.4	105		
L1 body		51.0	52.2	48.4	49.8	130		
PCB surface (near Q1)		54.9	56.1	53.8	54.9	130		
C50 body		51.9	53.6	52.6	54.3	125		
T1 core		55.2	56.4	55.5	56.5	Ref.		
T1 coil		56.3	57.6	56.5	57.9	90		
PCB surface (near CR51)		54.7	56.1	55.5	57.0	130		
Output wire		45.6	46.9	46.7	47.8	80		
Inside enclosure near T1		53.3	54.7	54.1	55.4	Cl.4.2.7		
External enclosure near T1		47.4	49.1	48.1	49.6	95		
Supplementary information:								
Temperature T of winding:		t <sub>1</sub> (°C)	R <sub>1</sub> (Ω)	t <sub>2</sub> (°C)	R <sub>2</sub> (Ω)	T (°C)	Allowed T <sub>max</sub> (°C)	Insulation class
Winding of transformer		--	--	--	--	--	--	Class A
Supplementary information:								
1. Horizontal means the adaptor is plugged into horizontal socket-outlet; Vertical means the adaptor is plugged into vertical wall socket-outlet. 2. Thermocouple method used. 3. Tma is 40°C Max., the above data are adjusted according to ambient temperature 40°C.								



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Clause	Requirement + Test	Result - Remark	Verdict
4.5.5	TABLE: ball pressure test of thermoplastic parts		P
	allowed impression diameter (mm) .....	≤ 2 mm	—
part		test temperature (°C)	impression diameter (mm)
Plug holder		125	1.0
Supplementary information:	--		

4.7	TABLE: Resistance to fire					P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence	
See table 1.5.1						
Supplementary information: --						

5.2	TABLE: electric strength tests and impulse tests					P		
test voltage applied between:				test voltage (V)	breakdown Yes / No			
Pri. circuit and sec. circuit (RI)				AC 3000	No			
Pri. circuit and enclosure with foil (RI)				AC 3000	No			
T1 pri. winding and sec. winding (RI)				AC 3000	No			
T1 sec. winding and core (RI)				AC 3000	No			
1 layer insulating tape used for T1 (BI)				AC 1780	No			
supplementary information								
Supplementary information:								
BI: Basic insulation; RI: Reinforced insulation								

5.3	TABLE: fault condition tests						P
	ambient temperature (°C) .....				40	—	
	model/type of power supply .....				See below	—	
	manufacturer of power supply .....				See page 2	—	
	rated markings of power supply .....				See page 2	—	
	Component No.	fault	test voltage (V)	test time	fuse No.	fuse current (A)	result
1.	CR2	S-C	264V	1 second	F1	--	F1 opened immediately, Uo=Uoc=0V, no hazards



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Clause	Requirement + Test				Result - Remark		Verdict
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2.	C1	S-C	264V	1 second	F1	--	F1 opened immediately, Uo=Uoc=0V, no hazards
3.	T1 pin4-5	S-C	264V	10 minutes	F1	0.032→0.008	Unit shut down immediately, no damage, Uo=Uoc=0V, no hazards
4.	T1 pinA-B	S-C	264V	10 minutes	F1	0.032→0.008	Unit shut down immediately, no damage, Uo=Uoc=0V, no hazards
5.	CR51	S-C	264V	10 minutes	F1	0.032→0.008	Unit shut down immediately, no damage, Uo=Uoc=0V, no hazards
6.	Q1 (b, e)	S-C	264V	10 minutes	F1	0.032→0.008	Unit shut down immediately, no damage, Uo=Uoc=0V, no hazards
7.	Q1 (b, c)	S-C	264V	1 second	F1	0.032→0	IC1, Q1 damaged immediately, Uo=Uoc=0V, no hazards
8.	Q1 (e, c)	S-C	264V	1 second	F1	--	F1 opened immediately, Uo=Uoc=0V, no hazards
9.	R11	S-C	264V	2.5 hours	F1	0.032→0.033	Similar to normal operation, T1 winding: 63.5°C, no damage, Uo=Uoc=8.89V, no hazards
10.	IC1 pin2-4	S-C	264V	10 minutes	F1	0.032→0.008	Unit shut down immediately, no damage, Uo=Uoc=0V, no hazards
11.	IC1 pin4-5	S-C	264V	10 minutes	F1	0.032→0	IC1 damaged immediately, Uo=Uoc=0V, no hazards
12.	Output	O-L	264V	6.5 hours	F1	0.032→0.035 →0.034→ 0.008	Output overloaded to at 0.36A, then unit shut down at 0.38A, T1 winding: 64.9°C, no hazards
13.	Output	S-C	264V	10 minutes	F1	0.032→0.008	Unit shut down immediately, Uo=Uoc<1V, no hazards

## Supplementary information:

1. "S-C" means short-circuited test, "O-L" means overload test, "O-C" means open-circuited test; Uo means output voltage at normal load, Uoc means output voltage without load. (unit: V d.c.)
2. Thermocouple method used.
3. Limited temperature for winding is 140°C(Class A). The above temperature data were adjusted according to ambient temperature 40°C.

**Attachment No. 1 to 085-10501101-000**

Models MN-A001-A08Z, MN-A002-A08Z, MN-A001-A09Z, MN-A002-A09Z and MN-A003-A09Z, Z=0-9, a-z or A-Y indicates series number, the output current range is from 100mA to 300mA by step of 10mA		
Model No.	Rated output voltage (V d.c.)	Rated output current (mA)
MN-A001-A08Z	7,5	100-300
MN-A002-A08Z	7,5	100-300
MN-A001-A09Z	9,0	100-300
MN-A002-A09Z	9,0	100-300
MN-A003-A09Z	9,0	100-300

-----END-----

**For EU plug (EN 50075:1990):**

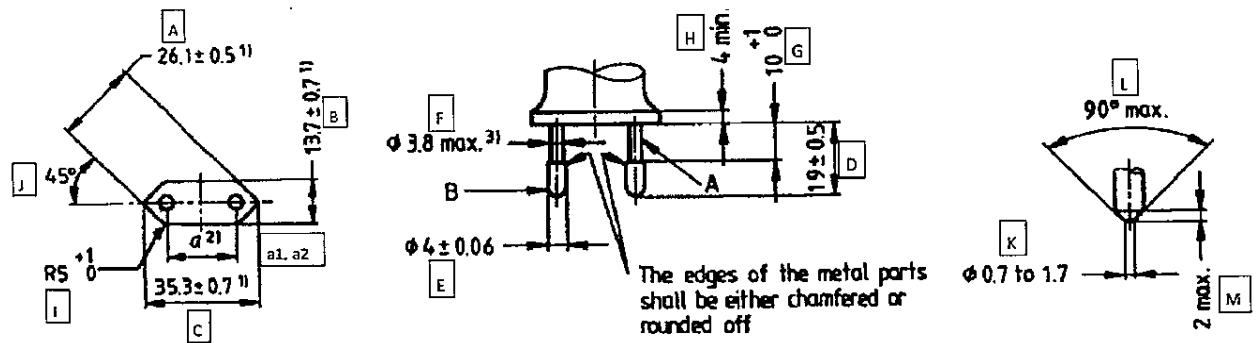
<b>7</b>	<b>DIMENSIONS</b>	<b>P</b>
	Dimension of plug shall comply with standard sheet1	(See appended table)
<b>8</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK</b>	<b>--</b>
8.1	Live parts of the plugs, with the exception of the bare metal pins, should not be accessible(75N, 60 second in 35°C ambient)	P
8.2	It should not be possible to make connection between a pin of a plug and live socket contact of a socket while the other pin is accessible	P
8.3	External parts of plug made of insulating material	P
<b>9</b>	<b>CONSTRUCTION</b>	<b>--</b>
9.3	Pins of shall have adequate mechanical strength to withstand the stress imposed during use	P
9.4	Pins of plugs shall be locked against rotation and adequately fixed into body of the plug	P
9.6	Plug shall be shaped in such a way and made of such material that they can easily be withdrawn by hand from the socket outlet	P
<b>13</b>	<b>MECHANICAL STRENGTH</b>	<b>--</b>
13.1	Compression test (150 N, 5 min)	P
13.2	Tumbling barrel test for adaptor  After test, the pin shall not turn when a torque of 0.4 Nm is applied, first in one direction for 1 min and then in the opposite direction for 1 min.	P
13.3	Abrasion test on the insulating sleeves	20000 movements: no damage P
13.4	Pin shall not have displaced in body of the plug more than 1mm	P
<b>15</b>	<b>CURRENT-CARRYING PARTS AND CONNECTIONS</b>	<b>--</b>
15.2	Electric connection shall be so designed that contact pressure is not transmitted through insulation	P
15.3	Current-carrying parts	P
	Copper	P
	Alloy containing at least 58% of copper equivalent	More than 61.8% copper or equivalent P
<b>17</b>	<b>RESISTANCE OF INSULATING MATERIAL TO ABNORMAL HEAT AND TO FIRE</b>	<b>--</b>
	Glow-wire test	P
	Parts of insulating material to retain current-	P



	carrying parts: 750 °C		
	Other parts: 650 °C		P

**Sub-clause 7 Dimension of plug shall comply with standard sheet1. Unit (mm)**

Location	Sample No. 1	Sample No. 2	Sample No. 3	Limit
A	25.78	25.95	25.87	$26.1 \pm 0.5$
B	13.55	13.50	13.52	$13.7 \pm 0.7$
C	35.48	35.41	35.47	$35.3 \pm 0.7$
D	19.07	18.94	19.05	$19.0 \pm 0.5$
E	4.03	4.04	4.04	$\phi 4 \pm 0.06$
F	3.35	3.36	3.41	$\phi 3.8$ max.
G	10.34	10.36	10.46	10-11
a1	18.38	18.43	18.47	18-19.2
a2	17.53	17.56	17.92	17-18
H	18.31	18.44	18.14	4 min.
I	5.32	5.27	5.37	R5-6
J	45.37	45.32	45.78	---
Alternative for end of pin				
K	N/A	N/A	N/A	$\phi 0.7-1.7$
L	N/A	N/A	N/A	90° max.
M	N/A	N/A	N/A	2 max.

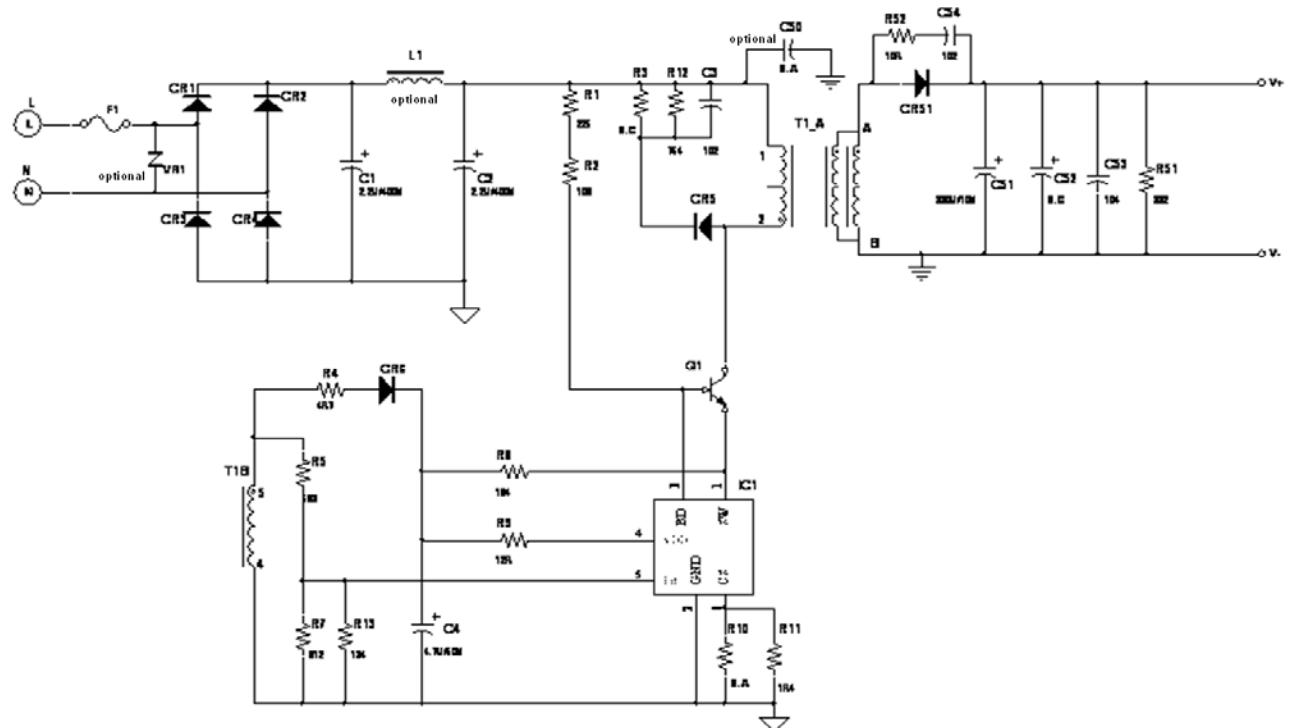


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## Attachment No.3 to 085-10501101-000

### Circuit diagram:

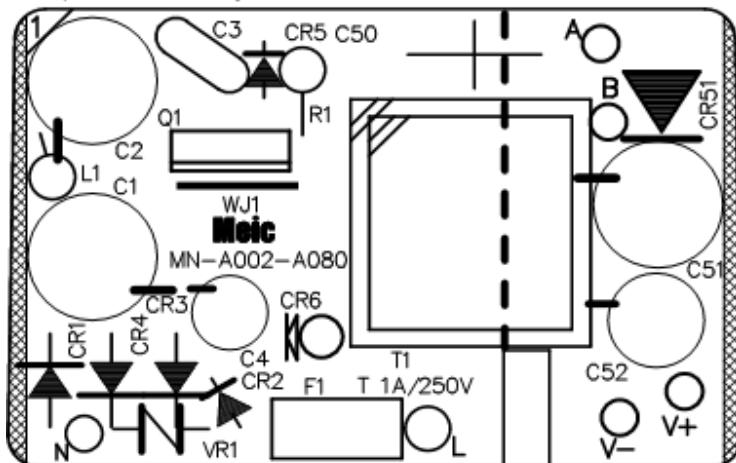




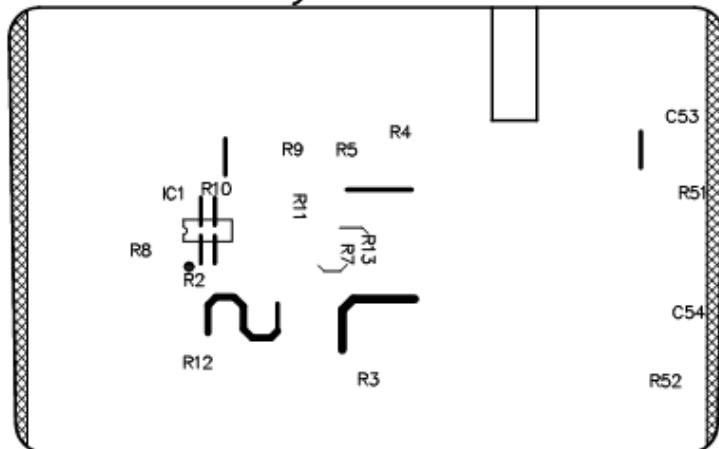
Attachment No.3 to 085-10501101-000

PCB layout drawing:

Top Overlay

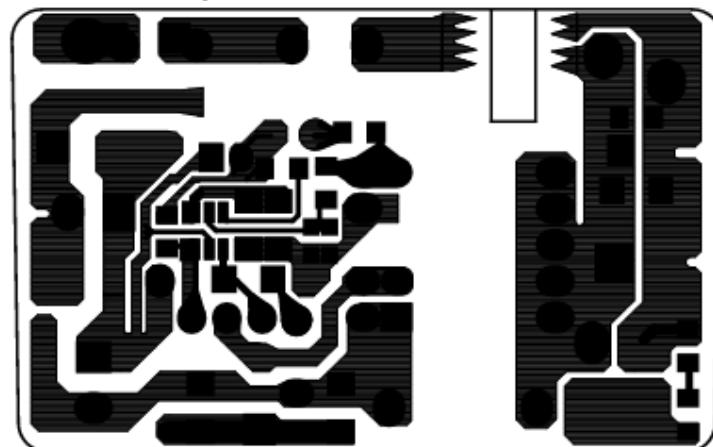


Bottom Overlay

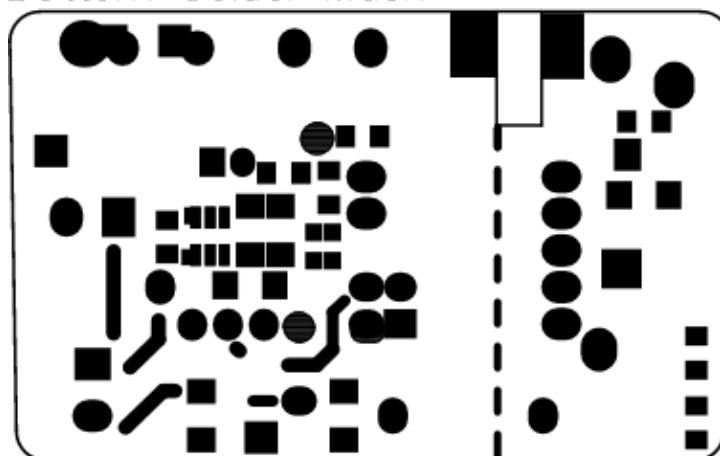




BottomLayer



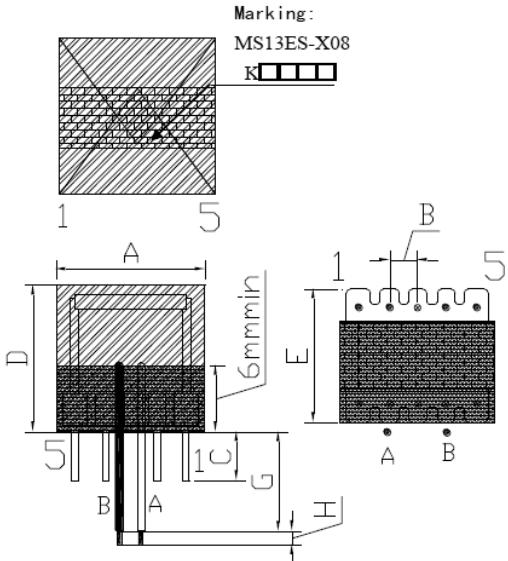
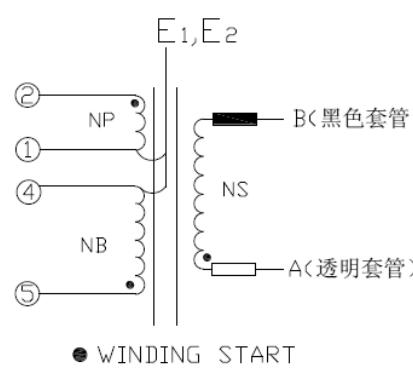
Bottom Solder Mask





## Transformer T1 specification:

1. Manufacturer: XIAMEN COST ELECTRON CO., LTD.

<b>PRODUCT SPECIFICATION</b> 贵司品名: CUSTOMER S PRODUCT NAME MS13ES-X08	<b>CUSTOMER:</b> 廈門瑪司特電子工業有限公司 弊司品名: COST PRODUCT NAME MS13ES-K09035															
<b>(1) CONFIGURATION&amp;DIMENSIONS:</b>																
<div style="display: flex; align-items: center; justify-content: space-between;"> <div style="flex-grow: 1;">  <p>Marking: MS13ES-X08 K□□□</p> </div> <div style="border: 1px solid black; padding: 5px; margin-left: 20px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">NO</th> <th style="text-align: left;">单位: mm</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>15.0 MAX</td> </tr> <tr> <td>B</td> <td>2.5 ± 0.3</td> </tr> <tr> <td>C</td> <td>3.3 ± 0.5</td> </tr> <tr> <td>D</td> <td>14.2 MAX</td> </tr> <tr> <td>E</td> <td>14.5 MAX</td> </tr> <tr> <td>G</td> <td>23.0 ± 2.0</td> </tr> <tr> <td>H</td> <td>3.3 ± 0.5</td> </tr> </tbody> </table> </div> </div>	NO	单位: mm	A	15.0 MAX	B	2.5 ± 0.3	C	3.3 ± 0.5	D	14.2 MAX	E	14.5 MAX	G	23.0 ± 2.0	H	3.3 ± 0.5
NO	单位: mm															
A	15.0 MAX															
B	2.5 ± 0.3															
C	3.3 ± 0.5															
D	14.2 MAX															
E	14.5 MAX															
G	23.0 ± 2.0															
H	3.3 ± 0.5															
<b>(2) SCHEMATIC DIAGRAM:</b>																
 <ul style="list-style-type: none"> <li>● WINDING START</li> <li>□ TUBE</li> </ul>	<p>REMARK:</p> <ol style="list-style-type: none"> <li>1. LOT NO: □□ □□ a b</li> <li>A: year: LAST PART OF FIGURE (EX: 1. JUNE, 2009: 0924)</li> <li>B: week</li> <li>2. MANUFACTURE' S CODE: K: COST XIAMEN</li> <li>3. THE TRANSFORMER IS LEAD-FREE SOLDER CORRESPONDING PRODUCT.</li> <li>4. PIN3, 6, 7, 8, 9, 10CUT OFF.</li> <li>.</li> </ol>															



**Attachment No.3 to 085-10501101-000**

PRODUCT SPECIFICATION					CUSTOMER:		
贵司品名: CUSTOMER S PRODUCT NAME MS13ES-X08					弊司品名: COST PRODUCT NAME MS13ES-K09035		
(3) WINDING SPECIFICATION:							
NO	COIL	TERMINAL	TURNS	WIRE	WINDING	tape Layer	BARRIER TAPE
1	E1	1----	10 (ref)	2UEW0.15*4	密卷	2 圈	-----
2	NP	2----1	160	2UEW0.15 (每绕2层线包1圈胶带)	密卷	1 圈	-----
3	E2	4----	10 (ref)	2UEW0.15*4	密卷	2 圈	-----
4	NS	A----B	15	TEX-E0.25	密卷	1 圈	-----
5	NB	5----4	33	2UEW0.15	密卷	3 圈	W=1.5mm(pin 侧)
(4) ELECTRICAL CHARACTERISTICS:							
NO.	TEST ITEM	TERMINAL	SPECIFICATION	TEST INSTRUMENTS			
1	INDUCTANCE	2--1	3.2mH±8%	1062 LCZ METER or EQUIVALENT @10KHz @1 Vrms			
2	Leakage inductance	2--1 (other pin short)	140uH MAX				
3	DC RESISTANCE	5---4	1.5Ω MAX	TH 2512A OR EQUIVALENT			
		2---1	5.5Ω MAX				
		A---B	220mΩ MAX				
4	WITHSTANDING VOLTAGE	PRI---SEC	AC/3600V/ 2s	PUNCTURER TESTER: KIKUSUI TOS-8650 or EVERFINE YE7110 or EQUIVALENT SENSITIVE CURRENT: 2mA			
		SEC---CORE	AC 3000V/60S				
		PRI --- CORE	AC 1500V/ 60				
5	INSULATION RESISTANCE	PRI---SEC SEC---CORE	100MΩ MIN/DC/500V	MEG OHM METER TOA:SM-5E or EQUIVALENT			
6	POLARITY TURNS RATIO ( INPUT : 2---1 )	5---4	0.21 Vrms±2.5%	RATIO METER f=1—100kHz only for reference(at: f=10KHz) SO VALUE WILL BE REVISED LATER			
		A---B	0.09V rms±3.5%				
备注: N01, 2, 4, 6 项目全测。 N03, 5 项目抽测 10pcs/lot。							



PRODUCT SPECIFICATION		CUSTOMER:
贵司品名: CUSTOMER'S PRODUCT NAME MS13ES-X08		厦門瑪司特電子工業有限公司
		弊司品名: COST PRODUCT NAME MS13ES-K09035
(5) INSULATING CONSTRUCTION: (UNIT:mm) :		
<p>4</p> <p>NB (2UEW0.15 33Ts) NS (TEX-E0.25 15Ts) E2 (2UEW0.15*4 10Ts (REF)) NP (2UEW0.15 160Ts) E1 (2UEW0.15*4 10Ts (ref))</p> <p>3A</p> <p>1</p> <p>3</p> <p>2</p>		



**Attachment No.3 to 085-10501101-000**

**2. Manufacturer: Fuzhou Flying Power Unit Co., Ltd.**

Model No. 型号: BCK-EE1345			Customer 客户: 玛司特电子			
Design's NO.设计号:			Customer NO. 客户型号: MS13ES-X08V015FL			
Characteristic 特性	Terminal 端子	Technique Request 技术要求		unit 单位	Testing Condition 测试条件	
Inductance 电感量	2-1	3.2±10%		mH	10KHZ/1V	
Leakage Inductance 漏感	2-1	200.0 max		uH	10KHZ/1.0V All secondary coil	
POLARITY TURNS RATIO 匝数比	2--1/5---4/ A --B		160:33:15		TEST FIXTURE (测试设备) MZ3280	
Winding 线圈	S-F 始-末	WIRE DIAMETER 线径	Turns 匝数	WIND WISE 绕线方式	DCR T=20°C 直流电阻	Matreial 材料
SHIELD	1 -- 0	Φ0.15×4	10(REF)	密卷		QA-1
NP	2 -- 1	Φ0.15	160	密卷	5.5 Ω (max)	QA-1
SHIELD	4 -- 0	Φ0.15×4	10(REF)	密卷		QA-1
NS	A--B	Φ0.25	15	密卷		TILW
NB	5 -- 4	Φ0.15	33	密卷		QA-1
Dielectric Test 耐压测试			Temperature Rise Test 温升测试			
Characteristic 特性	Standard 规 格	Creepage Current 漏电流	Time 时间	Way 方法	Temperature 温度	Choose 选定
Primary-Secondary(P-S)	3600V	2mA	2S	Resistor Method 电阻法		
Primary-Core(P-C)	300V	2mA	2S	Thermocouple 电藕法		
Secondary-Core(S-C)	3600V	2mA	2S			
Principium Fig 原理图	<p>注: "*" 表示同名端。 "—" 表示套管</p>					
Exterior character 外观特性	<ol style="list-style-type: none"> <li>变压器外观应整洁、无机械损伤无明显疤痕或漆瘤;</li> <li>The exterior of the switching power supplies must be clean and have no mechanical damage;</li> <li>变压器端子应能承受不少于 10 秒, 10 牛顿的拉力试验。</li> <li>Lead pull test:Terminals shall withstand without breaking or loosening when a static load of 10Newton is applied in a drawing direction for 10seconds to the terminal</li> </ol>					
Insulation Resistance 绝缘电阻	DC 500V 100MΩ MIN	Use environment 使用环境	Temperature 温度	-25°C ~ +55°C		
			Comparatively humidity 相对湿度	45% ~ 75%		
LayerWithstandVoltage 层间耐压		Storage environment 储存环境	Temperature 温度	-10°C ~ +40°C		
			Comparatively humidity 相对湿度	不大于80%		
Insulation method 绝缘处理	Impregnation Varnish 浸 漆	端子焊锡度 Soldering of the leads			>95%	

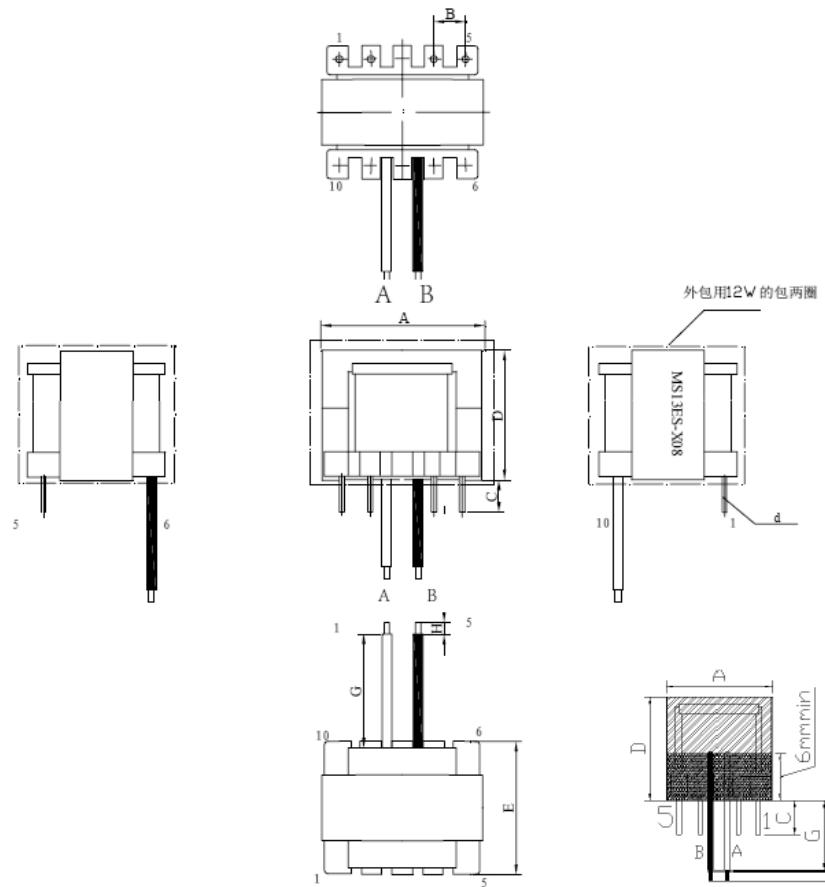
**Attachment No.3 to 085-10501101-000**



Model No. 型号	BCK-EE1345	Customer 客户	玛司特电子
Design's No. 设计号		Part no 客户部品号	MS13ES-X08V015FL

outline dimension drawing:(Unit:mm)

外观示意图：（单位：mm）



注:1、A, B 为飞线  
2、第3、6、7、8、9、10脚为空脚

A	B	C	D	E
15.0 max	$2.5 \pm 0.3$	$3.3 \pm 0.5$	14.2 max	14.5 max
G	H	d		
$23 \pm 0.5$	$4.0 \pm 1.0$	$0.6 \pm 0.1$		



### Attachment No.3 to 085-10501101-000

Model No. 型号	BCK-EE1345	Customer 客户	玛司特电子
Design's No. 设计号		Part no 客户部品号	MS13ES-X08V015FL

structural drawing :  
结构图:



## 3. Manufacturer: XIAMEN K.M.ELECTRONICS CO., LTD

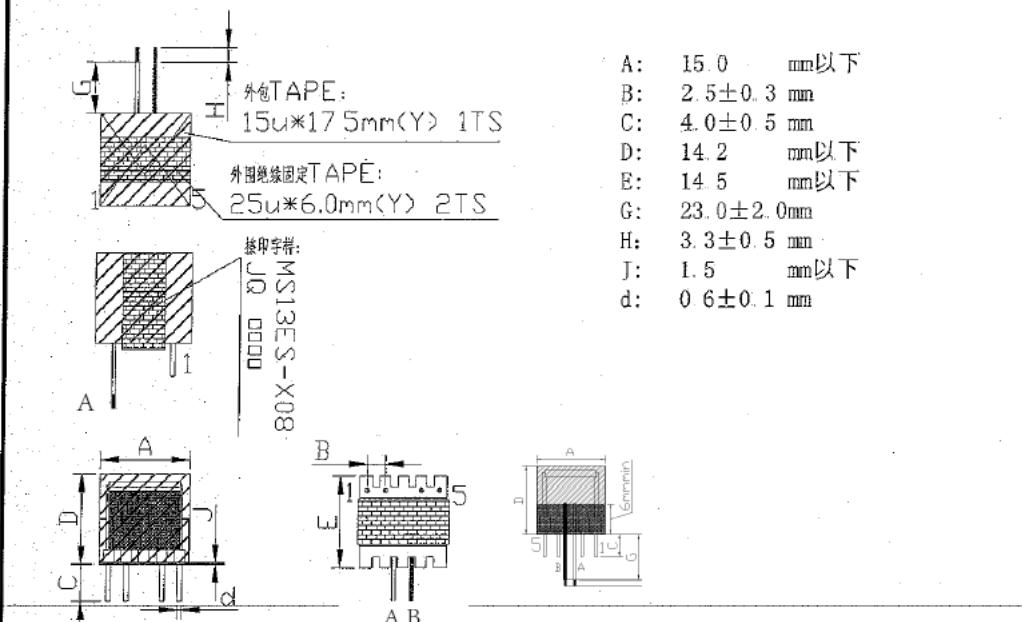
PRODUCT SPECIFICATION	CUSTOMER: 厦门玛司特电子工业有限公司						
K.M. PT/NO: KM-EE13-322K-X05	CUSTOMER PT/NO: MS13ES-X08V015KM						
<b>1、DIMENSION: (UNIT: mm) (结构图)</b>							
<p>MS13ES-X08 KM XXX 年周期</p> <p>外圆绝缘胶带 25u×W17.5mm×1层</p> <p>外圆绝缘固定胶带 25u×W6.0mm×2圈</p>	A: 15.0 MAX B: 2.5 ± 0.5 C: 3.3 ± 0.5 D: 14.2 MAX E: 14.0 MAX G: 23.0 ± 0.2 H: 4.0 ± 1.0 d: 0.6 ± 0.1						
备注: ①、缺 3、7、8、9 PIN。 ②、Core 组立后, 先沿线包方向横包 1Ts Tape 25u×17.5mm, 多出部分向顶部反折, 再沿磁芯方向纵包 2Ts Tape 25u×6.0mm。							
<b>2、SCHEMATIC: (原理图)</b>							
<b>3、WINDING SPECIFICATION: (绕线表)</b>							
序号 NO	绕组 COIL	端子 TERMINAL	沿面胶带及圈数 BARRIER TAPE	漆包线 WIRE	匝数 TURNS	麦拉胶带 MALAYER TAPE	卷法 WINDING
1	E1	1 — 0	/	2UEWΦ0.15mm×4	10Ts	25u×7.6mm1Ts	密卷
2	NP1	2 — 1	/	2UEWΦ0.15mm	160Ts	25u×7.6mm1Ts	密卷
3	E2	4 — 0	/	2UEWΦ0.15mm×4	10Ts	25u×7.6mm1Ts	密卷
4	NS	A,B	/	TLW-B Φ0.25mm	15Ts	25u×7.6mm2Ts	密卷
5	NP3	5 — 4	280u×1.5mm 1Ts 靠 PIN 侧	2UEWΦ0.15mm	33Ts	25u×7.6mm3Ts	密卷
MADE BY							
			REMARKS				



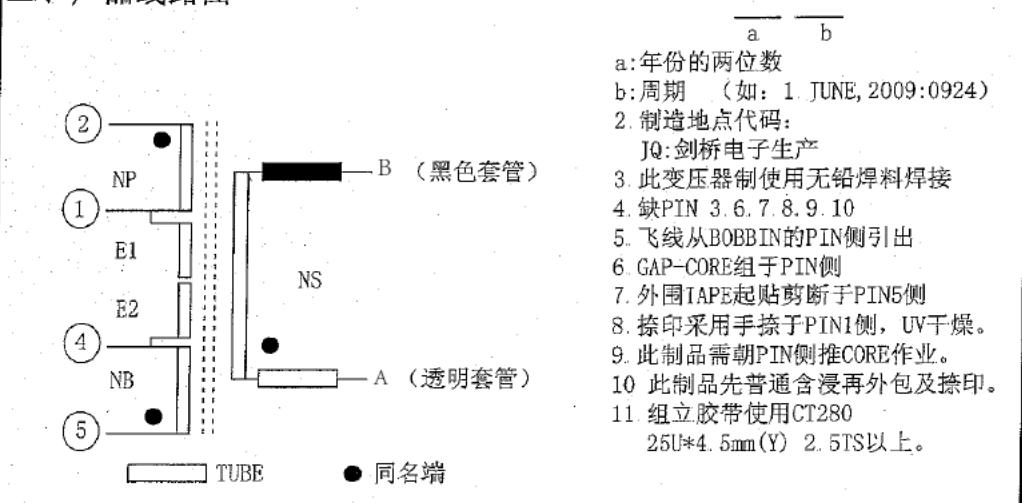
## 4. Manufacturer: JianQiao (LongYan) Co., Ltd.

承认书名称: 外 观 图	顾客名: 厦门玛司特电子	顾客品名: MS13ES-X08V015JQ
承认书编码: WI-RD-049017-001(1.2)	品名编号: 2J09017	剑桥品名: JQT13EE004V005

## 一、形状及尺寸



## 二、产品线路图





承认书名称: 电气特性		顾客名: 厦门玛司特电子		顾客品名: MS13ES-X08V015JQ	
承认书编码: WI-RD-049017-001(1.2)		品名编号: 2J09017		剑桥品名: JQT13EE004V005	
<b>三、卷线规格</b>					
NO.	卷组名	端子	线材规格	圈数	卷法
1	E1	1—	2UEW0.15*4	10TS	密着卷
2	NP	2—1	2UEW0.15 (每两层包一层胶带)	160IS	密着卷
3	E2	4—	2UEW0.15*4	10IS	密着卷
4	NS	A,B	IEX-E0.25	15TS	密着卷
5	NB	5—4	2UEW0.15	33IS	密着卷
<b>四、电气特性</b>					
测试项目	测试方法	测试条件	测试端子	规格	测试仪器
L 值 △1	全 数	10KHZ 1Vrms	2—1	3.2mH±8%	4263D METER OR EQUIVALENT
Le 值	全 数	10KHZ 1Vrms (4 5 P+ P-短路)	2—1	140uH MAX	4263D METER OR EQUIVALENT
直流阻抗 RDC	抽 测 10pcs/Lot.		5—4 2—1 P+ --- P-	1.5Ω MAX 5.5Ω MAX 220mΩ MAX	IH 2512A OR EQUIVALENT
耐电压 △!	全 数	AC3.6KV 2mA AC300V 2mA	P—S S—CORE P—CORE	2S	KIKUSUI IOS-8650 OR EVERFINE YE7110 OR EQUIVALENT SENSITIVE
卷数比	全 数	INPUT:2—1	5—4 P+—P-	0.21Vrms±2.5% 0.09Vrms±5.5%	RAIIO METER f=10kHz
绝缘阻抗	抽 测 10pcs/Lot.	DC500V	P—S S—CORE	100MΩ	MEG OHM METER TOA:SM-5E OR EQUIVALENT



4. Manufacturer: JIASHENGYUAN ELECTRONICS CO., LTD.

CUSTOMER	玛司特	CUS. NO.	MS13ES-X08V015K	CUS. REV	A/0				
J. S. E NO.	C408TEE0130-0004A	J. S. E REV	A	DATE	2009-12-11				
MECHANICAL DIMENSION (UNIT: mm)									
A	15.0 MAX								
B	14.5 MAX								
C	14.2 MAX								
D	$\Phi 0.6 \pm 0.1$								
L	$3.3 \pm 0.5$								
P	$2.5 \pm 0.3$								
T	$23.0 \pm 2.0$								
T1	$3.3 \pm 0.5$								
ELEVATION VIEW		SIDE VIEW							
BOTTOM VIEW		TOP VIEW							
NOTE:									
1. PIN 3, 6, 7, 8, 9, 10 CUT OFF. 2. 研磨铁芯置于顶部, CORE须用6.0mm TAPE包3TS固定. 3. 外围须用17.5mm的TAPE平齐底部沿线包方向包2TS, 多余部份折向顶部, 再用6.0mmTAPE沿CORE方向包2TS. 4. 产品需真空含浸. (标签贴法及外观尺寸如图所示)									
博罗县嘉盛源电子有限公司 JIASHENGYUAN ELECTRONICS CO., LTD 地址:广东省惠州市博罗县龙华镇龙腾工业园 Longhua Town, Huizhou, Guangdong Province, China. TEL:0752-6768708 6768788 FAX:0752-6768799	APPROVED		CHECKED	DRAWN					
	张素兵		宋喜春	黎浩					



**Attachment No.3 to 085-10501101-000**

CUSTOMER	玛司特		CUS. NO.	MS13ES-X08V015K	CUS. REV	A/0																					
J. S. E NO.	C408TEE0130-0004A	J. S. E REV		A	DATE	2009-12-11																					
<b>SCHEMATIC DRAWING:</b>				<b>WINDING ORDER:</b>																							
				<table border="1"> <thead> <tr> <th>PIN</th> <th>TOP</th> <th>胶带层数</th> </tr> </thead> <tbody> <tr> <td>N5</td> <td>3TS</td> <td>3TS</td> </tr> <tr> <td>N4</td> <td>1TS</td> <td>1TS</td> </tr> <tr> <td>N3</td> <td>2TS</td> <td>2TS</td> </tr> <tr> <td>N2</td> <td>1TS</td> <td>1TS</td> </tr> <tr> <td>N1</td> <td>2TS</td> <td>2TS</td> </tr> <tr> <td>BOBBIN</td> <td></td> <td></td> </tr> </tbody> </table>			PIN	TOP	胶带层数	N5	3TS	3TS	N4	1TS	1TS	N3	2TS	2TS	N2	1TS	1TS	N1	2TS	2TS	BOBBIN		
PIN	TOP	胶带层数																									
N5	3TS	3TS																									
N4	1TS	1TS																									
N3	2TS	2TS																									
N2	1TS	1TS																									
N1	2TS	2TS																									
BOBBIN																											
WINDING	START	FINISH	WIRE/COPPER(mm)	TURN(TS)	TAPE	REMARK																					
N1	1	N/C	Φ0.15*4C 2UEW	10TS REF	2TS	密绕一层																					
N2	2	1	Φ0.15*1C 2UEW	160TS	1TS	层绝密绕																					
N3	4	N/C	Φ0.15*4C 2UEW	10TS REF	2TS	密绕一层																					
N4	A	B	Φ0.25*1C TIW-2	15TS	1TS	密绕																					
N5	5	4	Φ0.15*1C 2UEW	33TS	3TS	密绕																					
NOTE:																											
1. 绕线方向:顶部朝机台作业. 2. 绕线需平整,铜线不能交叉破皮. 3. 绕N2时,每绕二层线须包1TS TAPE.																											
博罗县嘉盛源电子有限公司 JIASHENGYUAN ELECTRONICS CO., LTD 地址:广东省惠州市博罗县龙华镇龙腾工业园 Longhua Town, Huizhou, Guangdong Province, China. TEL:0752-6768708 6768788 FAX:0752-6768799	APPROVED		CHECKED	DRAWN																							
	张素兵		宋喜春	黎浩																							

**Attachment No.3 to 085-10501101-000**

CUSTOMER	玛司特	CUS. NO.	MS13ES-X08V015K	CUS. REV	A/0			
J. S. E NO.	C408TEE0130-0004A	J. S. E REV	A	DATE	2009-12-11			
ELECTRICAL CHARACTERISTICS:								
TEST		WINDING		REQUIREMENTS	CONDITIONS			
INDUCTANCE		2-1		3. 2mH±10%	10KHz/1. 0V			
LK		2-1 (SHORT SEC)		140uH MAX				
DCR		2-1		5. 5 Ω MAX	AT:25°C			
		5-4		1. 5 Ω MAX				
		P+-P-		220mΩ MAX				
HI-POT		P----S		3600VAC	2mA/2SEC			
		P----C		300VAC				
		S----C		3600VAC				
INSULATION RESISTANCE		P----S		100M OHM MIN	0. 5KVDC			
		P----C		100M OHM MIN				
		S----C		100M OHM MIN				
TEMPERATURE PROPERTY:								
BETWEEN-20°C TO 80°C								
TEST INDUCTANCE AND RESISTANCE ON THE BASIS OF 25°C								
博罗县嘉盛源电子有限公司 JIASHENGYUAN ELECTRONICS CO., LTD 地址:广东省惠州市博罗县龙华镇龙腾工业园 Longhua Town, Huizhou, Guangdong Province, China. TEL:0752-6768708 6768788 FAX:0752-6768799		APPROVED	CHECKED	DRAWN				
		张素兵	宋喜春	黎浩				



**Photo documentation**

Negatives / photos received on (date): 2010-02-23

Applicant: XIAMEN METROTEC INDUSTRY CO., LTD.

Type of equipment, model: AC Power Adapter, MN-A001-A08Z, MN-A002-A08Z, MN-A001-A09Z, MN-A002-A09Z, MN-A003-A09Z (Z=0-9, a-z or A-Y)

Details of:



Details of:





Details of: Internal construction

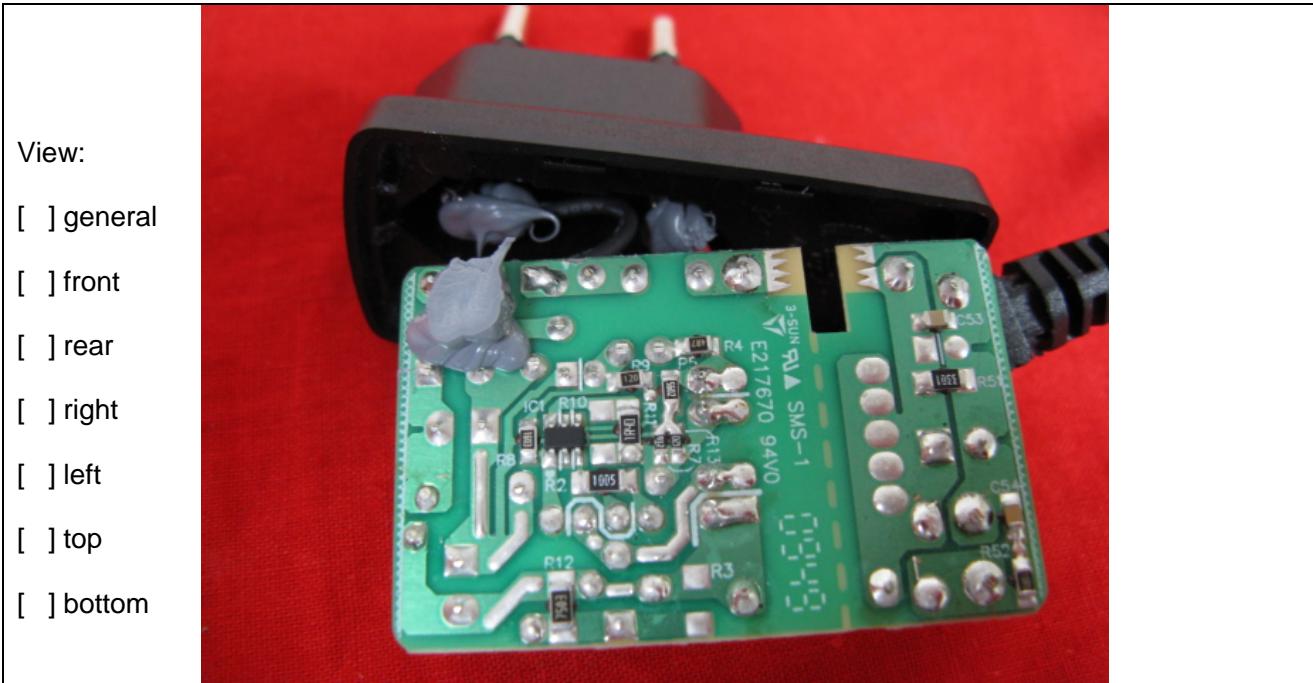
View:	
<input type="checkbox"/> general	
<input type="checkbox"/> front	
<input type="checkbox"/> rear	
<input type="checkbox"/> right	
<input type="checkbox"/> left	
<input type="checkbox"/> top	
<input type="checkbox"/> bottom	

Details of: Internal construction (with another type output cord)

View:	
<input type="checkbox"/> general	
<input type="checkbox"/> front	
<input type="checkbox"/> rear	
<input type="checkbox"/> right	
<input type="checkbox"/> left	
<input type="checkbox"/> top	
<input type="checkbox"/> bottom	



Details of: PCB trace

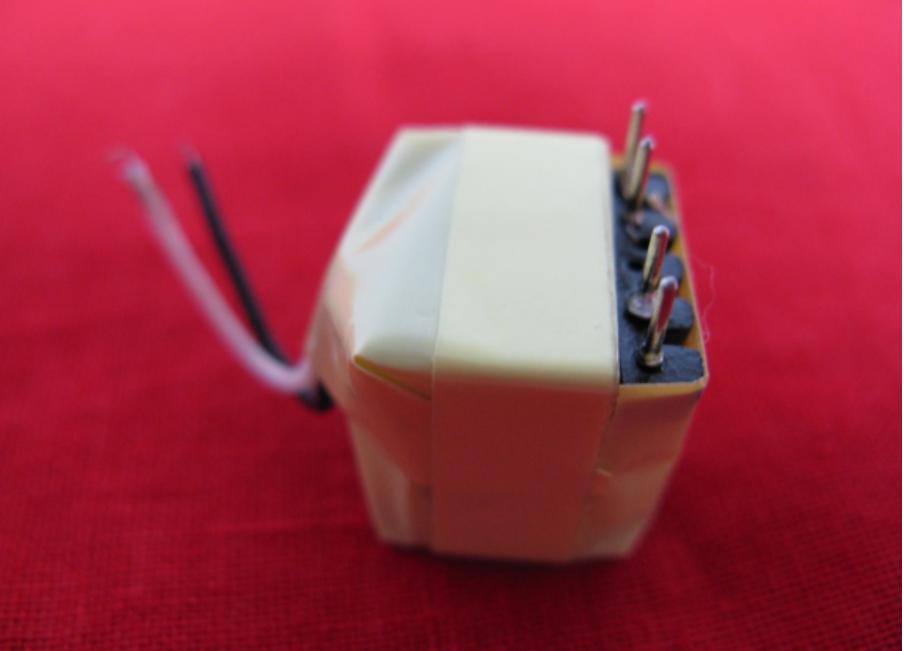


Details of: Transformer (T1)





Details of: **Transformer (T1)**

View:  [ <input checked="" type="checkbox"/> ] general [ <input type="checkbox"/> ] front [ <input type="checkbox"/> ] rear [ <input type="checkbox"/> ] right [ <input type="checkbox"/> ] left [ <input type="checkbox"/> ] top [ <input checked="" type="checkbox"/> ] bottom	 A photograph of a small, cylindrical transformer. It has a yellow and orange striped insulation jacket. Four wires are visible at the top terminal block: two black wires and two red wires. The transformer is set against a solid red background.	
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